TRANSACTIONS

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of
OPHTHALMOLOGY
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OTOLARYNGOLOGY

MARCH - APRIL
1958

Volume 62 Number 2

ANNUAL MEETING, OCTOBER 12-17, 1958, CHICAGO

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American Academy of Ophthalmology and Otolaryngology

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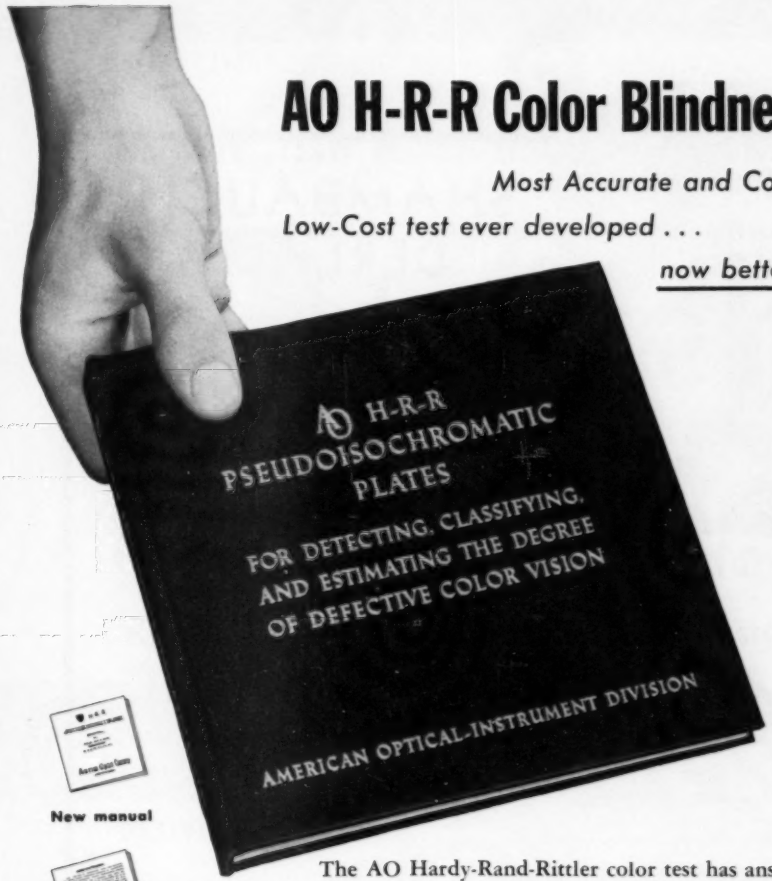

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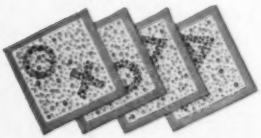

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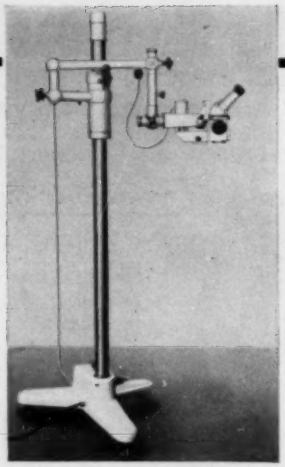

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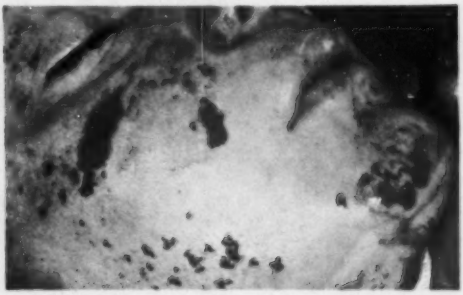

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1. *Dripps, R.D.: Hazards of the Immediate Postoperative Period, J.A.M.A. 7:795 (Oct. 19, 1957) [This reference reviews postoperative hazards, and does not refer to Adrenosem Salicylate]*
2. *Ersner, M.S., and Lerner, S.S.: M. Clin. North America 40:1749 (Nov., 1956)*
3. *Peele, J.C.: Further Observations on the Use of Adrenosem Salicylate in the Control of Hemorrhage from the Nose and Throat, N. Carolina M.J. 17:98 (March, 1956)*
4. *Brown, W.S.: The Use of Adrenosem Salicylate to Control Postoperative Bleeding in Plastic Surgery: Dermabrasion, Northwest Medicine. In Press.*
5. *Wilkins, B.D.: Gastrointestinal Bleeding as Seen by the Proctologist, J.A.M.A. 163:1214 (April 6, 1957)*
6. *Orzac, E.: Medical Care of the Child Patient Before and After Adenoidectomy and Tonsillectomy, N.Y. State J. Med. 55:886 (Mar., 1956)*
7. *N.N.R., 1957, p. 265*

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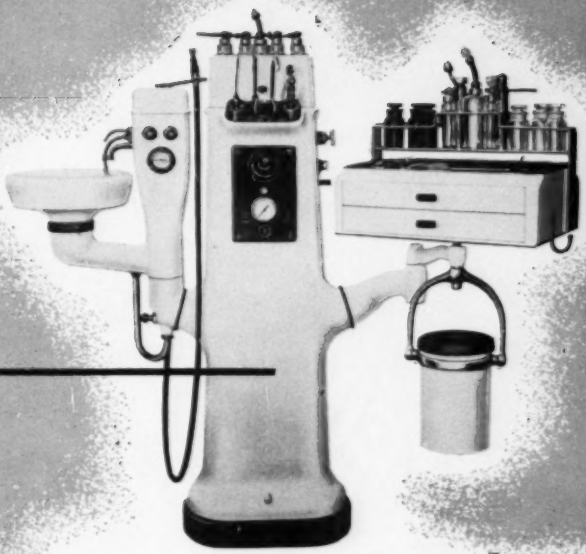

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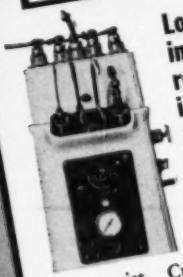

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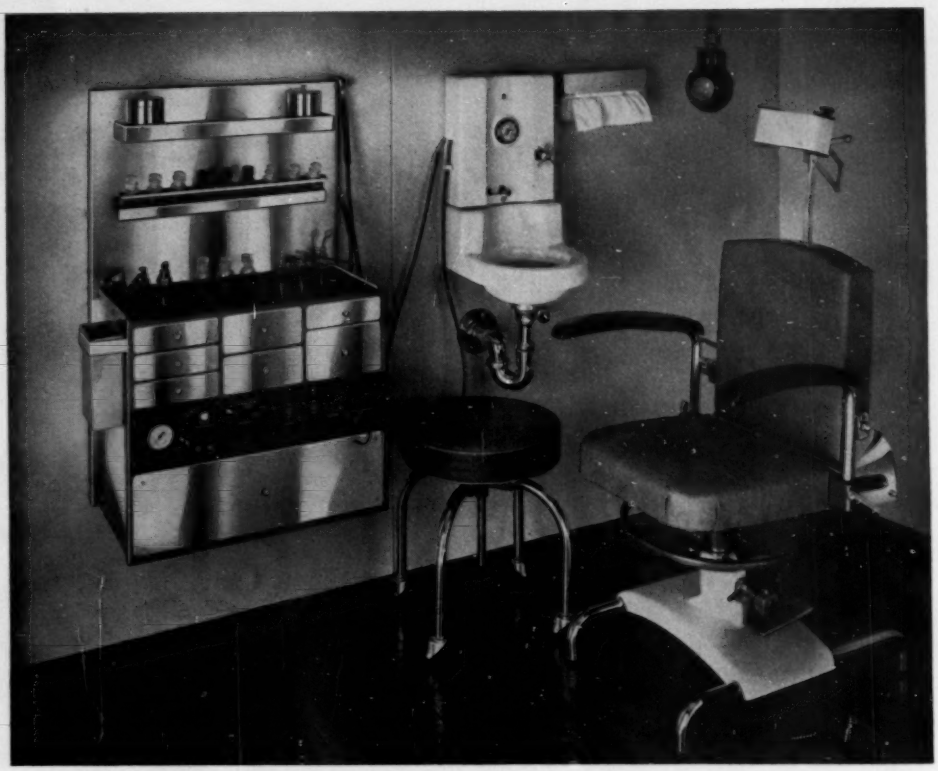

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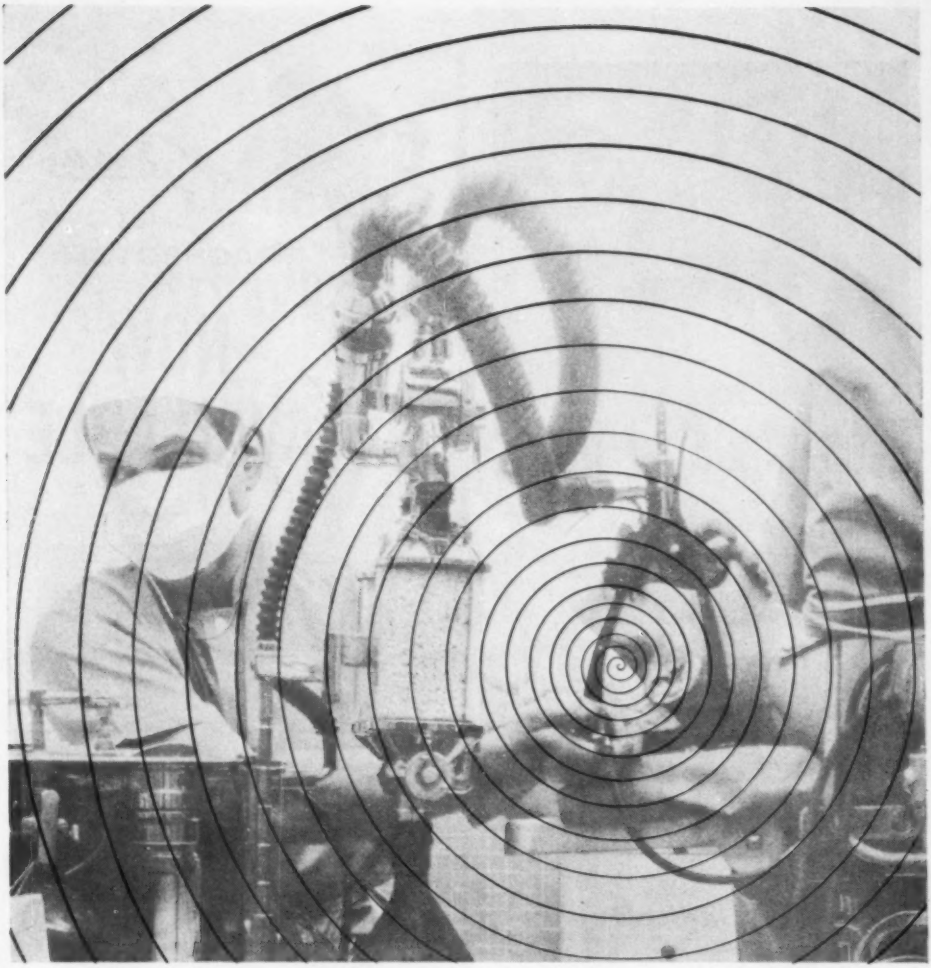

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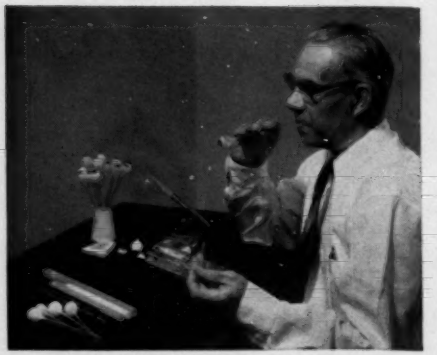

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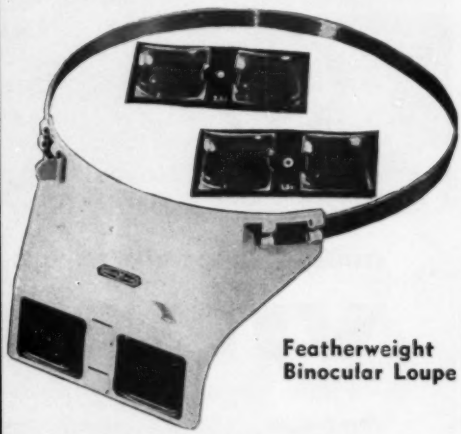

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retinal hemorrhages absorbed

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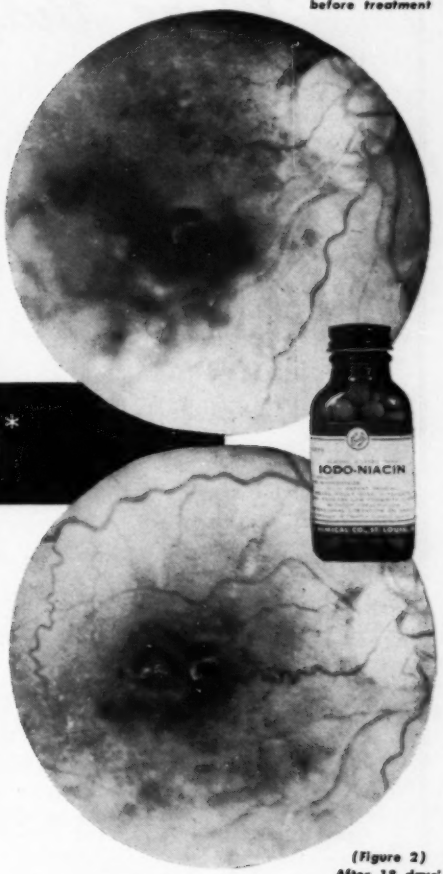

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1. *Am. J. Ophth.* 42:771, 1956.
2. *Am. J. Digest. Dis.* 22:5, 1955.
3. *Med. Times* 84:741, 1956.

*U.S. Patent Pending

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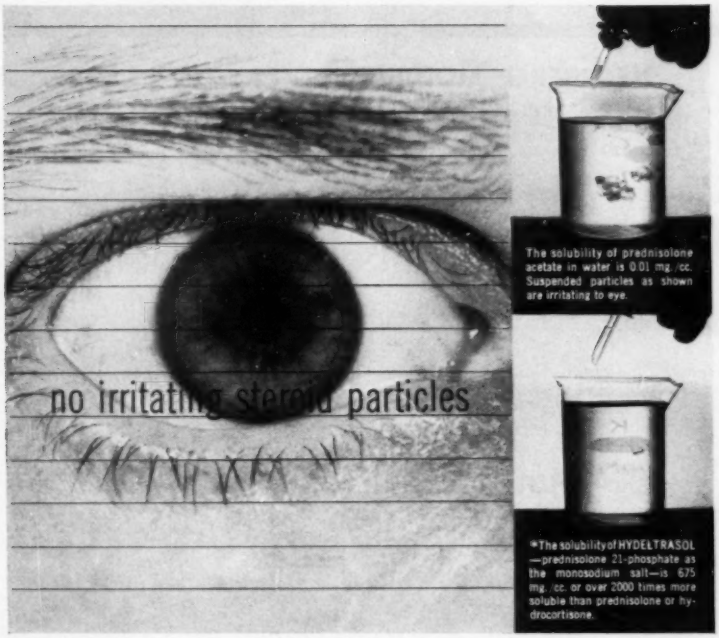
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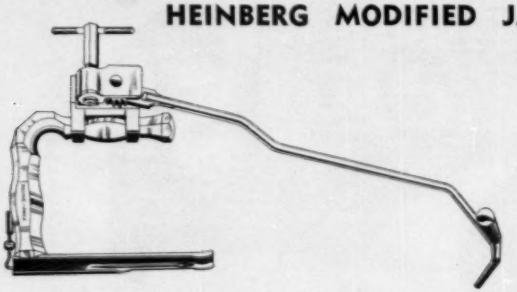

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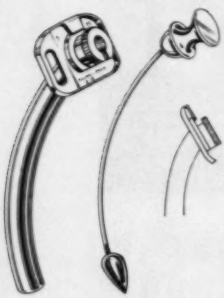

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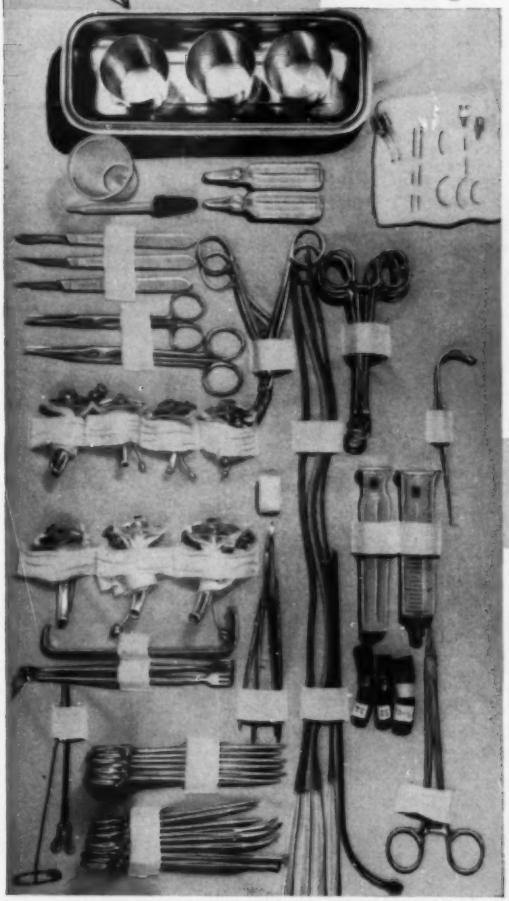

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Important **be sure to mark the course date on your calendar**

February 4 to June 1

State & City	Date	Time	Type Course	Hotel
ALABAMA				
Birmingham	Thur. Apr. 10	7 to 10 P.M.	A	Dinkler-Tutwiler
CALIFORNIA				
San Francisco	Thur. Mar. 13	7 to 10 P.M.	A & B	St. Francis
Los Angeles	Sun. Mar. 16	1 to 5 P.M.	A & B	Statler
COLORADO				
Denver	Tues. Mar. 18	7 to 10 P.M.	A	Brown Palace
CONNECTICUT				
Hartford	Thur. May 22	7 to 10 P.M.	A	Statler
GEORGIA				
Atlanta	Sun. Apr. 13	1 to 5 P.M.	A & B	Dinkler-Plaza
ILLINOIS				
Chicago	Sun. May 4	1 to 5 P.M.	A & B	Palmer House
INDIANA				
Indianapolis	Thur. Feb. 13	7 to 10 P.M.	A	Sheraton-Lincoln
KANSAS				
Kansas City	Tues. Apr. 22	7 to 10 P.M.	A	Town House
LOUISIANA				
New Orleans	Sun. Feb. 23	1 to 5 P.M.	A	Roosevelt
MARYLAND				
Baltimore	Fri. May 30	7 to 10 P.M.	A	Lord Baltimore
MASSACHUSETTS				
Boston	Tues. May 20	7 to 10 P.M.	A & B	Statler
MICHIGAN				
Detroit	Tues. Feb. 4	7 to 10 P.M.	A & B	Statler
MINNESOTA				
Minneapolis	Sun. Mar. 9	1 to 5 P.M.	A & B	Curtis
MISSOURI				
St. Louis	Tues. Apr. 22	7 to 10 P.M.	A	Statler
NEW YORK				
Buffalo	Thur. May 15	7 to 10 P.M.	A & B	Statler
Rochester	Sun. May 18	1 to 5 P.M.	A	Sheraton
New York	Sun. May 25	1 to 5 P.M.	A & B	Park-Sheraton
OHIO				
Cleveland	Thur. Feb. 6	7 to 10 P.M.	A & B	Cleveland
Columbus	Sun. Feb. 9	1 to 5 P.M.	A	Deshler-Hilton
Toledo	Sun. Feb. 9	1 to 5 P.M.	A	Commodore Perry
Cincinnati	Wed. Feb. 12	7 to 10 P.M.	A & B	Netherland Hilton
OREGON				
Portland	Tues. Mar. 11	7 to 10 P.M.	A	Multnomah
PENNSYLVANIA				
Pittsburgh	Tues. May 13	7 to 10 P.M.	A & B	Penn-Sheraton
Philadelphia	Wed. May 28	7 to 10 P.M.	A & B	Essex
TENNESSEE				
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TEXAS				
Houston	Tues. Apr. 15	7 to 10 P.M.	A & B	Rice
San Antonio	Thur. Apr. 17	7 to 10 P.M.	A & B	St. Anthony
Dallas	Sun. Apr. 20	1 to 5 P.M.	A & B	Statler-Hilton
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Seattle	Tues. Mar. 11	7 to 10 P.M.	A	Olympic
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DISTRICT OF COLUMBIA				
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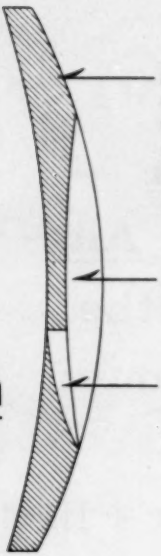
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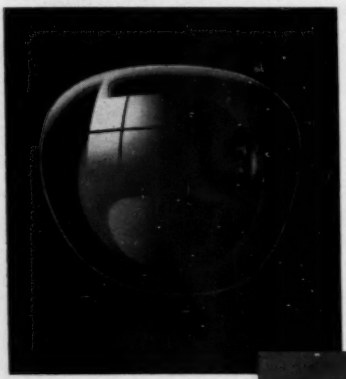

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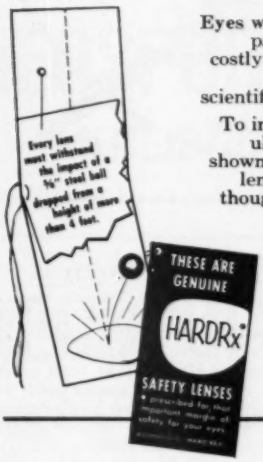
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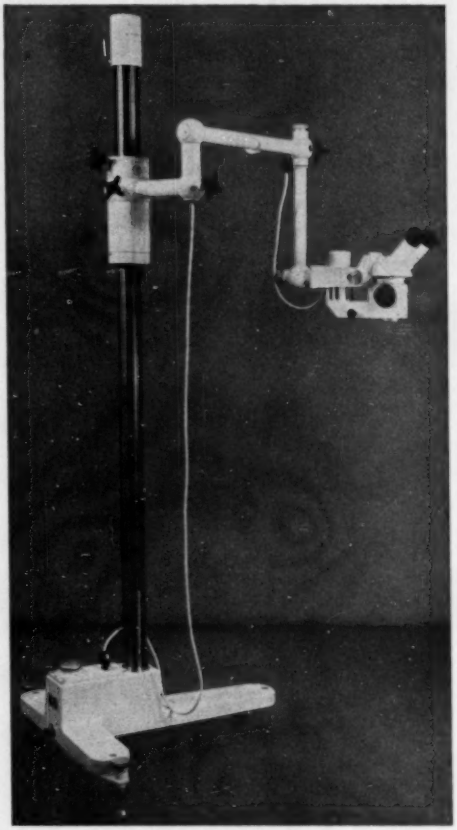

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Alfred J. Elliot, M.D. ..... Toronto, Ont., Canada
Louis J. Girard, M.D. ..... Oyster Bay, L. I., N. Y.
Erling W. Hansen, M.D. ..... Minneapolis
Robison D. Harley, M.D. ..... Atlantic City
S. Rodman Irvine, M.D. ..... Beverly Hills, Calif.
Philip M. Lewis, M.D. ..... Memphis
Angus L. MacLean, M.D. ..... Baltimore
John L. Matthews, *Secretary* ..... San Antonio
Brittain F. Payne, M.D. ..... New York
G. Stuart Ramsey, M.D. ..... Montreal, Que., Canada
Shaler Richardson, M.D. ..... Jacksonville, Fla.
Daniel Snydacker, M.D. ..... Chicago
Kenneth C. Swan, M.D. ..... Portland, Ore.
Antonio Torres Estrada, M.D. ..... Mexico, D. F.
Derrick T. Vail, M.D. ..... Chicago

Pan-American Relations in Otolaryngology

C. L. Jackson, M.D., *Chairman* ..... Philadelphia
Victor R. Alfaro, M.D. ..... Washington, D. C.
Norton Canfield, M.D. ..... New Haven, Conn.
John Marquis Converse, M.D. ..... New York
Jose Conrad Gros, M.D. ..... Havana, Cuba
Paul H. Holinger, M.D. ..... Chicago
Howard P. House, M.D. ..... Los Angeles
Carlos Munoz-MacCormick, M.D. ..... Santurce, Puerto Rico
William J. McNally, M.D. ..... Montreal, Que., Canada
LeRoy A. Schall, M.D. ..... Boston
Theodore E. Walsh, M.D. ..... St. Louis

Reconstructive Plastic Surgery

John Marquis Converse, M.D., *Chairman*, New York
Wendell L. Hughes, M.D., *Co-Chairman*, New York
William C. Huffman, M.D. ..... Iowa City
Charles E. Iliff, M.D. ..... Baltimore
Dean M. Lierle, M.D. ..... Iowa City
Merrill J. Reeh, M.D. ..... Portland, Ore.
Byron Smith, M.D. ..... New York
Edmund B. Spaeth, M.D. ..... Philadelphia
A. D. Ruedemann, M.D. ..... Detroit
Sidney K. Wynn, M.D. ..... Milwaukee

Scientific Exhibit

Kenneth L. Roper, M.D., *Chairman* ..... Chicago
Eugene L. Derlacki, M.D., *Co-Chairman* ..... Chicago

Standardization of Tonometers

Peter C. Kronfeld, M.D., *Chairman* ..... Chicago
Moacyr E. Alvaro, M.D. ..... Sao Paulo, Brazil
E. J. Ballintine, M.D. ..... Cleveland
Bernard Becker, M.D. ..... St. Louis
Conrad Berens, M.D. ..... New York
W. Morton Grant, M.D. ..... Boston
D. O. Harrington, M.D. ..... San Francisco
Thomas H. Hodgson, M.D. ..... Toronto, Ont., Canada
John C. McCulloch, M.D. ..... Toronto, Ont., Canada
Earle H. McBain, M.D. ..... San Rafael, Calif.
John M. McLean, M.D. ..... New York
Robert A. Moses, M.D. ..... University City, Mo.
Adolph Posner, M.D. ..... New York
Robert N. Shaffer, M.D. ..... San Francisco

Surgery of the Head and Neck

LeRoy A. Schall, M.D., *Chairman* ..... Boston
Virgil G. Casten, M.D. ..... Boston
Edwin W. Cocke, Jr., M.D. ..... Memphis
John J. Conley, M.D. ..... New York
William C. Huffman, M.D. ..... Iowa City
Joseph H. Ogura, M.D. ..... St. Louis
George A. Sisson, M.D. ..... Syracuse, N. Y.

Teachers' Section

Otolaryngology

James H. Maxwell, M.D., *Chairman*, Ann Arbor, Mich.

Ophthalmology

A. D. Ruedemann, M.D., *Chairman* ..... Detroit

Use of Diagnostic Procedures and Therapy in Uveitis

A. D. Ruedemann, M.D., *Chairman* ..... Detroit
Bernard Becker, M.D. ..... St. Louis
Alson E. Braley, M.D. ..... Iowa City
David Cogan, M.D. ..... Belmont, Mass.
Michael J. Hogan, M.D. ..... San Francisco
Irving H. Leopold, M.D. ..... Philadelphia
A. Edward Maumenee, M.D. ..... Baltimore
Frank W. Newell, M.D. ..... Chicago

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National Society for Crippled Children and Adults, Inc.

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WILLIAM P. WHERRY—1880-1942

XIII Wherry Memorial Lecture

HELLO? IS THIS BILL WHERRY?

GORDON D. HOOPLE, M.D.
SYRACUSE, NEW YORK

ON December 7, 1956, just fifteen years after Pearl Harbor, a well known national magazine carried a feature article. The headline of this story asked the following question, "What Has Become of Them?" This query referred to several heroes of World War II, which began on December 7, 1941. The tales of a dozen men were told; they included not only the heroic deeds of these men during the war but their subsequent lives as well. This magazine was determined that these men would not be forgotten.

Presented at the Sixty-Second Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 13-18, 1957, Chicago.

More than a year ago I was asked to give the Wherry Memorial Lecture for 1957. After I had accepted this honor, I began to ask myself about the nature of this presentation. To help me in this matter, I asked a number of the Academy's younger men what they would like to hear in a Wherry Memorial Lecture. Their replies amazed me. It turned out that none of them had known Bill Wherry personally, and what was more astonishing, they knew little or nothing about him. Of course not! As in the magazine article, fifteen years have passed since Bill Wherry left us and the younger members of the Academy, in the main, are only remotely aware of the influence this man had on otolaryngologic affairs in America from 1920 to 1942. In these 22 years, Bill Wherry wielded an influence which was remarkable indeed. But I am getting ahead of my story. As a result of my inquiring among the younger Acadamy members I decided that today I would retell the story of Bill Wherry, stressing the importance of this man to the Academy in particular and to otolaryngology in general.

In order to understand a man, we must first know him as a boy. Bill must have had some vigorous antecedents who had strong bodies, for this lad gave early evidence of activity which could have been the product only of a strong physique powered by a terrific drive. Some of this drive, however, came from necessity. His father died when Bill was still too young to remember him, and his mother died when he was six. Though he lived with a married sister, he had, in large measure, to fend for himself.

Evidently the family exchequer was meager, because this boy found it necessary to earn much of his own spending money. A letter to Dr. H. P. Mosher from Otis T. Alvison of Omaha, a boyhood companion, details some high school experiences. He says:

We both started in high school in 1895. About that time, we began to carry newspaper routes for the Omaha Bee and continued to do so until we were graduated from high school. We earned from $2.50 to $3.00 per week. Out of that, a goodly part went into the family purse, and the rest was guarded most carefully for the purchase of shoes and necessities, with an occasional nickel or dime for pleasure. When we went anywhere, it never occurred to us to ride on a street car. It was always walk, but walking was hard on shoes, and shoes cost $2.50 per pair, and $2.50 was a lot of money, and so the soles were not always in the best condition, even when the uppers looked pretty good on account of home shines that they got daily.

In high school Bill made a good record in his studies, not outstanding, but better than average. He lived about four miles from school, and each day, no matter what sort of weather, he walked to school. After school he walked his paper route, and then walked home after he finished delivering his papers. Much of the time he would study his lessons while he walked around his route.

I lived about two miles nearer town than he did, so every Saturday night he would stay with me so that we could get an early start for our Sunday morning routes. In the wintertime, on Saturday nights, my mother would make a plate of sandwiches and wrap them in a dishtowel and put a pot of coffee on the back of the hard coal burner so that we could have a snack before we started out on Sunday morning about 3:30 a.m. Bill never forgot mother's kindness to him, and after she left Omaha to live in California, he wrote to her regularly until she died.

Even as a freshman Bill was popular with everyone and well liked by the teachers, and that popularity grew each year. He always had a marvelous time at all the school parties. He loved to dance and had the reputation of being one of the best dancers in school. He was also noted for his line of chatter with the girls and his ability to get them to make fudge for him.

He was always a collector of many things. He kept the tickets and the programs of all the high school affairs and put them in a scrapbook he called his memory book. Not more than a year ago we spent a hilarious evening going through it. During his high school days he began collecting stamps, and this grew to be one of his greatest hobbies and developed into one of the outstanding collections in the country.

I have never known anyone who valued friendships more than he.

For two summers Bill had a peanut concession in a traveling show called "Cornell Concert Company Under Canvas." His genial personality along with his red coat and brass buttons made him a great favorite not only with his peanut customers but with his fellow workers. He also carried the flag in the nightly parade which opened the performance. Once when the cook was fired Bill took his place.

Another youthful occupation was acting as usher at the Boyd Opera House, Omaha. He enjoyed this thoroughly. When he was thirteen years old Bill attended the World's Fair in Chicago. This was in 1893. He traveled the 500 miles alone, another example of his usual independence as a youth.

It was about this time in his life that his older sister, Mrs. Brinser, with whom he lived, said of him:

"Bill was an earnest student. He always had a desk at home, studied at every opportunity and, in fact, was everlastingly busy . . . never wasted a moment."

Dr. Burt Christie, another Omaha friend, also wrote to Dr. Mosher:

My first association with Dr. Wherry was in medical school, where he became a very active aggressive factor. He became an integral part of my medical fraternity and was one of the factors of its great success.

My most direct contact with him was with the medical college paper, which was a student publication. I was editor-in-chief and he was the business manager. Well—we did so well, the college took the paper from out of the students' hands because they thought we had made too much money. The paper called the "Pulse" did not merit this because of the editorials or the scientific articles, but because of the pre-eminent success of Bill Wherry in getting advertisements.

Besides his genius in medicine, he had, as did Will Mayo, extraordinary ability as a salesman and a legitimate promoter. I attribute much of the success of our collegiate fraternity chapter to the energy and continuous efforts of "Sandwich Bill."

In later life whenever we had a meeting to plan for, whether a program of scientific matters or one for entertainment, he was always willing and successful in putting such a program across—the perennial secretary. He was always the first and last to come across with the cheery energy and with his share of the money to make the affair a success.

The energetic lad who was smart enough to finance his way through medical college, was made, later in life, a member of the following societies, which gives an inkling of his broad interests. (He was elected to high office in many of them. These are indicated.)

American Medical Association
Chairman, Section of Otolaryngology, 1934

American College of Surgeons

American Academy of Ophthalmology and Otolaryngology
Secretary, Section on Instruction, 1920-1926
First Vice-President, 1923
Executive Secretary-Treasurer, 1926-1942
Life Fellow, January 1, 1940
Editor, Bulletin and Transactions, 1930-1940

American Otological Society

American Laryngological Association
First Vice-President, 1936

American Laryngological, Rhinological and Otological Society

American Board of Otolaryngology
Diplomate, 1925
Secretary, 1927-1942

Alpha Omega Alpha

American Editors' and Authors' Association

Phi Rho Sigma Fraternity

Council on Medical Education
Delegate from Nebraska, 1936-1942

Omaha Mid-West Clinical Society
Treasurer, 1933-1942

Omaha-Douglas County Medical Society
President, 1932

Professor and Chairman of the Department of Otorhinolaryngology, The University of Nebraska College of Medicine

Medical Society of the Missouri Valley
President, 1932

Advisory Board for the Medical Specialties
Vice-President, 1934-1942

Omaha and Council Bluffs Ophthalmological and Otolaryngological Society
Charter Member—President

Sioux Valley Ophthalmological and Otolaryngological Society
Charter Member—President

Nebraska Academy of Ophthalmology and Otolaryngology
Charter Member—President

Pacific Coast Oto-Ophthalmological Society (Honorary Member)

Kansas City Oto-Ophthalmological Society (Honorary Member)

American Stomatological Society (Honorary Member)
He was awarded the honorary degree of Doctor of Science by Wayne University in 1941.

Membership in these professional societies was not his only activity. His social interests included membership in the Omaha Club, the Omaha Athletic Club, the Omaha Field Club, the University Club of Chicago, and two stamp societies.

William P. Wherry was born on June 16, 1880, in Omaha, Nebraska. He was the son of William and Alice (Cliff) Wherry from Cornwall, England. He married Eugenie Van Epp on October 25, 1904. The Wherrys had three children, Walter J. Wherry, Perdita L. Wherry Carr, and Robert Wherry.

Dr. Wherry had his preliminary education in the Omaha public schools. In the grades he attended the Lake Street School and later Omaha Central High School. He was graduated from the College of Medicine of the University of Nebraska in the class of 1903.

Dr. Wherry was a member and honorary president of the Staff of St. Catherine's Hospital, Omaha, on which he was oculist and aurist. He held the same professional positions at the Clarkson Hospital, Omaha.

He died in St. Catherine's Hospital June 13, 1942.

During his lifetime, Dr. Wherry wrote twenty-nine published medical articles. The list follows:

1. Supra-orbital Neuralgia—1906
2. Vincent's Angina—1912
3. Foreign Bodies at the Introitus of the Oesophagus: Reason for Care in Removal—1913
4. Tonsillar Hemorrhage—1913
5. Lymphatic Drainage of the Nose and Throat: Its Relation to Focal Infections—1916
6. Hayfever and Its Relief Through Desensitizing with Pollen Extract—1915
7. Focal Infections—1918
8. The Relation of the Roentgenologist to the Otolaryngologist in Paranasal Sinus Study—1918
9. A Rhinological Criticism of the Concept of the Average Internist Toward Sinus Study—1918
10. A Study of the Lymphatic Disturbance of the Nose and Throat in Acute Aural Infections in Children—1923
11. Oddities to be Looked for in the Paranasal Sinuses—1923
12. Acute Vacuum Frontal Sinusitis—1924
13. Visual Disturbances from Paranasal Sinus Disease—1926
14. The Value of the Roentgen Ray in Rhinological Diagnosis with an Elaboration of the Oblique Method of Rhese—1926
15. The Adaptation of Medicine in Industry
16. The Use of Colored Lenses by Enginemen While in Service
17. The American Board of Otolaryngology
18. Chronic Otorrhea (Guest Paper—Illinois State Medical Society)
19. The Teachers' Section, American Academy of Ophthalmology and Otolaryngology—1931
20. Symposium on Graduate Education—1931
21. The Immediate Postoperative Technique Incident to a Caldwell Luc Operation—1932
22. Eyes and Illumination—1932
23. Paranasal Sinus Pathology and Focal Infections—1932

24. Review of the Recent Research in Paranasal Sinusitis—1933
25. Registry of the Specialists—1933
26. An Analysis of Many Thousand Miles of Engine Travel by a Railroad Ophthalmologist—1933 (International Journal of Surgery)
27. Graduate Education in Otolaryngology: A Viewpoint of the Examining Board of Otolaryngology—Chairman's Address, Section on Otology, A.M.A., 1934
28. Review of Candidates Appearing Before the Board for Otolaryngology: Report to the Advisory Board for the Surgical Specialties—1935
29. My Son Studies Medicine—Address before Philadelphia Laryngological Society, January 1936

I am happy to report that Dr. Wherry was an ophthalmo-otolaryngologist and not a otorhinolaryngo-ophthalmologist! Despite his interest in otolaryngology and the honors won in that field, he was esteemed so highly in his associated specialty that the Union Pacific Railroad retained him for years as a consultant in ophthalmology. The Chicago and Northwestern Railroad did likewise. Dr. Wherry was given the Union Pacific appointment, probably, as a result of his interest in railroading, which I will mention later.

It almost goes without saying that this energetic man had a large private practice which at times threatened to engulf him but never quite succeeded. Miss Clare McGovern, who was his private office and Academy secretary for twenty-seven years, wrote me about his practice.

> The finest things about Dr. Wherry have never been written, for they were strictly personal. If ever there was a big man in every sense of the word, he was one. . . . His ideals were of the highest. I never knew him to be little, nor inhuman, regardless of the most trying circumstances. . . .
>
> Also, he was the ideal physician . . . countless patients entered his office whose initial attitude was entirely changed after his extremely gentle, careful and thorough examination; plus the kind, optimistic manner in which he explained, in simple language, his findings. He was never too busy to give each patient, besides medical care, time for discussion and full understanding of the problem. I believe I am not exaggerating in saying that no patient ever left the office without a lighter heart and step than when he entered.
>
> His huge office practice came second to an urgent call from the University of Nebraska Clinic when his skill and fine judgment were needed there.
>
> I may be prejudiced, but doubt if any employees in the whole wide world ever had a more wonderful boss than those fortunate enough to work for Dr. Wherry. Never did a girl leave his office for employment elsewhere. The only ones who left did so to get married.

Bill Wherry operated on the principle that it takes just as much energy to wish as it does to plan. He often arose at 2:00 a.m. and dictated on his Edison Sound Recorder till 5:00 a.m. Many a time in St. Catherine's Hospital he made rounds before 7:00 a.m. and would be in his office by 8:30.

How did such a busy fellow manage to carry so great a load? An inner urge, a burning zeal is partly the answer, but he also knew how to relax. This relaxation was often in fields other than medicine.

From boyhood he had an enthusiasm for baseball, and he had a full knowledge of the famous players for forty years back, especially of members of his home team.

Football also interested Bill Wherry greatly, and later in life there was an annual wordy battle between him and Dr. E. W. Day, father of Dr. Kenneth Day, on the respective merits of the Nebraska and the Pittsburgh elevens. Both men often attended games in Omaha or Pittsburgh when their elevens were playing. During American Board of Otolaryngology meetings, if there happened to be a big league ball game in the city, Bill often got tickets through the hotel manager for himself and as many of his friends as wished to go. No one be-

grudged him the relaxation because he was the hardest working member of the Board, not only at the examination but before and after it.

Cards and games of chance were a form of relaxation for him. Miss Clare McGovern wrote me:

> If he ever stole time from work, it was when he sandwiched in a game of hearts in the Douglas County Medical Society room, which was located on the same floor of the Medical Arts Building as the dining room. I doubt if a card game was ever played with which he was not familiar. If, and when, he took time out at noon (all too often he had only a sandwich and glass of milk in the office), he came back on duty shamefaced as if he had been a naughty boy. Not a word would be spoken but he always had an ear-to-ear grin when each nurse shook her head with an interrogatory glance.

He had what is called "card sense," and he often said that Lady Fortune was generally good to him in games of chance. Nearly every night at Board meetings when work was over, usually at times when it was really too late, a four-hand game of cards would be started. In the later years, it was generally rummy, played for small stakes.

Dr. Wherry at an early date, as Mr. Alvison said in his letter, became interested in stamps, and by trading them, helped pay his way through medical school. He once told Dr. H. P. Mosher that if medicine ever failed him, he felt that he could again support himself in this way. He was president of two important stamp societies. All his life he kept in touch with stamp auctions in London and New York, and maintained standing bids for certain issues in both cities. At his death his collection was valued in the thousands.

He was a barterer not only in stamps but in all forms of trade. This explains his fondness for auctions, especially those at Atlantic City. After a meeting of the Academy or of the Board he never left the hotel without reviewing the bill with the hotel manager, and arguing about each expense which he thought was greater than it should have been.

Years ago when the railroads were experimenting with the efficiency of various track signals, Dr. Wherry made some fundamental observations for the Union Pacific Railroad. In this work he had a chance to carry out the dream of most young boys, namely to ride with the engineer of the train in his cab. He found it necessary for his experiments to ride more than once on the cow catcher. He kept up his interest in locomotives all his life.

Bill Wherry was an avid golfer. He had many interests, but he loved nothing better than to play in a foursome with close associates (fig. 2). His enthusiasm in this direction culminated in an annual Academy golfing day for each of the last few years of his secretaryship. The activities of this golfing day grew to such proportions that it was discontinued on his death; no one without his organizational ability could put it on. Because he believed it was good to mingle fun with hard work, he inaugurated the Evenings of Diversion for the Academy, which were so enjoyable in the days when the Academy was somewhat smaller than it is now.

Dr. Wherry was a big man physically and radiated vitality. He always greeted you enthusiastically. He made friends easily and, more important, had the ability to hold them. He characteristically did things in a big way.

Do you younger men of the Academy now think you know this man with his multiple interests and unusual executive powers? Well, not quite, for I have not yet outlined his career in the Academy nor told the story of his secretaryship of the American Board of Otolaryngology. He made each of these two organizations serve the purpose of the other.

FIG. 2—A favorite foursome: William P. Wherry, William Mullin, William L. Benedict, and Harry Gradle.

Bill Wherry joined the Academy in 1910 when he was thirty years old. The records show little activity on his part till 1920, when he was made a member and secretary of a new Committee on Instruction. This happened to be in the twenty-fifth year of the Academy, the first year candidates were examined for acceptability as Academy members. These examinations were the forerunner of the American Board of Otolaryngology. The instruction courses began as roundtable discussions, and there were only half a dozen of them at the start. These needed reorganization and were made into what, in 1921, was called the Post Graduate Course. Dr. Harry Gradle, later a president of the Academy, said to a general meeting then:

> The Course on Instruction has done quite a bit of work this past year but the majority of this has been done by Dr. Wherry. The smoothing out of all the details has been due to his untiring efforts. I wish to take this occasion before the Academy to express the thanks of the entire Committee to Dr. Wherry for the effort he has expended.

Thus he got off to a running start as one of the Academy's secretaries. The Post Graduate Course was three days long and it was held after the regular three-day scientific session. It was not until several years later that the instruction courses, as we know them today, were integrated into the regular Academy program. This feature of the Academy's activities grew and grew. There were 181 courses given the year Dr. Wherry died.

Dr. Wherry was made first vice-president of the Academy in 1923, undoubtedly in recognition of his work on the Instruction Committee. Dr. W. B. Lancaster, President of the Academy that year, said of Dr. Wherry:

A giant himself in body and mind whose name should not be "Wherry," which according to the dictionary is "a small boat propelled by hand," useful as that little boat is, but rather it should suggest a submarine whose work is often out of sight but whose results are tremendous.

In 1925, a plan was proposed to reorganize the Academy the following year. Academy activities were to be directed by a Board of Secretaries, with a strong man as executive secretary of the group. (Later in 1935 the Board of Secretaries was enlarged to include several undersecretaries). This plan is essentially the same as the one under which the Academy runs today.

In 1926, Bill was elected to the secretaryship of the Academy (fig. 3). When he assumed office, there were 1,543 members and the treasury had a balance of $72,000. When he died in 1942 the Academy had 3,500 members and $144,000. It is silly to claim that he alone was responsible for this doubling of membership and treasury balance. He was helped by many able men and also by a notable increase in the number of doctors who entered the specialties of eye and ear, nose and throat during the twenties and thirties. However, it is fair to say that he was the guiding genius for those sixteen years and was responsible more than any other man for the tremendous reputation which the Academy acquired at that time.

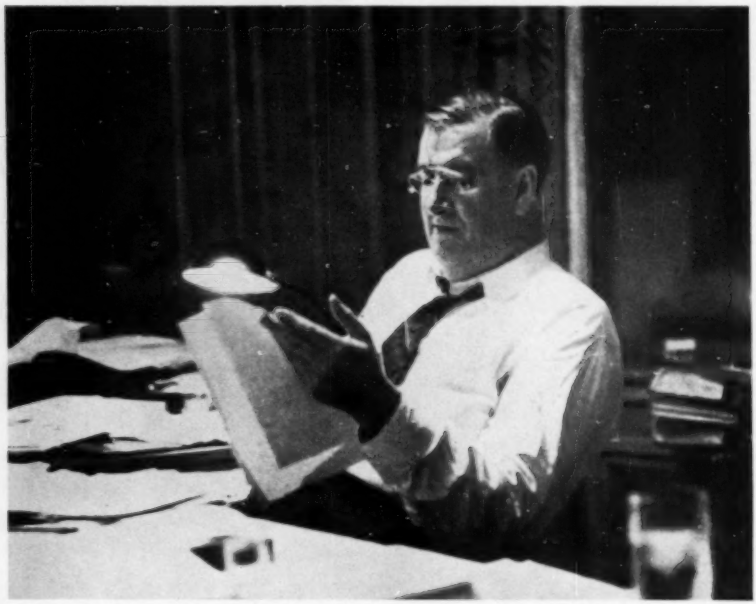


FIG. 3—Bill Wherry at work.

In 1930, Bill Wherry started the *Bulletin* of the Academy, which in a few years was to become the present bi-

monthly TRANSACTIONS. For the first 12 years of this publication he wrote an editorial entitled "Introspection." This was his own contribution, and in each issue he discussed a wide range of topics pertinent to the improvement of our specialties. In one issue in 1941 he wrote on "Medical Education," "The Council on Medical Education and Hospitals of the AMA," "Enlarging the Scope of the Teachers' Section," "Home Study Courses" (which he helped to inaugurate in 1940), and "Keeping Undesirable Men from Post Graduate Courses." In the very next issue of the TRANSACTIONS he advocated cooperation with the coming war effort. This was a particular enterprise to which he directed his zeal and energy during the last year of his life. He wanted desperately to win the war, but he was especially anxious that it should not interfere with medical standards or progress.

In 1931 the Teachers' Section of the Academy was inaugurated, and who did the Council ask to sound the keynote for this important endeavor? You have guessed it—Bill Wherry. In this talk, which launched the Section, he enthusiastically proposed possibilities for it, many of which have resulted in improved teaching for Ophthalmology and Otolaryngology. In the following years he was continuously advocating that we should work to maintain and improve teaching in our residencies and create a better situation for advancement after graduation.

Ever an idealist, he wrote a Thanksgiving Day "Introspection" a few days before Pearl Harbor. He sensed an oncoming war. He said:

> Let us be grateful we are alive, can assume responsibilities, can carry on our ideals, and when the time comes cheerfully get behind the dominate force to rehabilitate ideals and cultures now devastated.

But he was human, too. When he was secretary-treasurer of the Academy, he was also at the same time treasurer of the following societies: the Nebraska State Society, the Jackson County Society, the Omaha Clinical Society, and the Board of Otolaryngology. Any other man would have had to arm himself with a complicated bookkeeping system. Not Bill. He would come to an Academy meeting with his pockets full of bills of many denominations. As he paid for an Academy expense he would write a small chit, put it in his pocket and go on to his next duty. When he returned home he often would have as many as twenty-five or thirty of these bits of paper in his pockets. He would spread them out on his desk or, at times when there were too many of them, put them on his office floor and straighten out his accounts. He always managed to account for every penny.

If you knew Bill as secretary of the Academy only moderately well, you could not keep from being caught up by the whirlwind of his enthusiasm. Dr. Wells Eagleton, a senior otolaryngologist, had little to do with the Academy during his professional life. He was made Academy President in 1935. I suspect he had been asked to join the Academy a couple of years previous to this solely for the purpose of honoring him with this high office. As President-elect he had occasion, for the first time, to witness Bill in harness. In his presidential address Eagleton said:

> Do you realize this is a big affair that is going on here and do you realize that it is moved by an organization under Dr. Wherry who works all the year around simply for the love of working and serving the profession of which he is a member?

Then he advocated Roosevelt's taking Bill in as a cabinet member for health!

Let me remind you that this busy Academy secretary was at the same time

secretary of the American Board of Otolaryngology. Despite the fact that during Dr. Wherry's fifteen years of secretaryship of the Board, Dr. H. P. Mosher was a strong president, Bill Wherry ran the Board and he ran it with a firm hand (fig. 4). He was as pleasant and genial as he was in Academy affairs, but he was all business too. Under his driving energy we took only two days to conduct a Board examination. Now, for a similar examination, five days are allotted. At that time a full day for examining candidates was followed by an executive session which took all evening. Following this came the necessary reading and marking of the written examination, till two, three or four o'clock in the morning. All this with Bill Wherry standing over us ready to crack the whip over a waning spirit. It was senseless but nobody questioned the schedule, for Bill would be working harder than any of the others. This stern discipline was there but it was unobtrusive.

If anyone ever carried his work home with him, it was Bill Wherry. His desk was piled high with the applications of candidates for the American Board, and they never ceased coming. As they arrived he assigned each candidate to the different members of the Board for the various parts of the examination. Each card had the half-hour periods checked on it at which the candidate was to appear before the examiners. Carrying out the minutiae of all this assigning and doing it endlessly through the year, with seldom a mistake, was a task he did admirably.

FIG. 4—Clare McGovern, Bill Wherry, and H. P. Mosher.

What was not generally known about Dr. Wherry, not known even to some

members of the Board, was his shepherding of the men who failed at the Board examinations and who asked for advice about coming up a second time, yes, even a third time. He had a flock of these lame ducks, and he carried on an extensive correspondence with them, telling them where they failed or were weak, and advising them what to do in order to make a better showing next time. All the members of the Board naturally were sympathetic with such men when they reappeared. Many such repeaters, after following Dr. Wherry's advice, passed on the second trial, and Bill valued highly, as he should, the letters of thanks which these men wrote to him for his kindly help. He was quietly very proud of being able to help them.

Any candidate who had been out ten years and was still practicing his specialty with only his graduation knowledge, who read little or nothing and never went to medical meetings, got off to a poor start with Dr. Wherry. This attitude was not simply a hunch with him; he had the cold figures of examination results to prove this judgment.

Speaking of examinations, it should be on record that Dr. Wherry always insisted on a careful review of all the examinations in which the candidate's marks made it doubtful whether he should pass. This was one of the most tedious jobs of an already tired Board, but it was never omitted. In these reviews the examiner who gave below passing marks had to justify his questions before the whole Board, or prove that he was not riding a hobby.

Dr. Wherry was especially anxious that the standard of the Board examination should not be lowered on account of the war. He strove mightily in this effort.

Through Dr. C.W.M. Poynter, a medical classmate at the University of Nebraska and for some time Dean of the Nebraska State Medical School, he had entree to the annual dinners of the American Association of Deans of Medical Schools. From these meetings, he often came dripping with new ideas on medical education. The information thus gathered he used to improve standards both in the Academy and in the Board.

In the early days of the American Board, a number of examinations were held in distant cities like San Francisco and Dallas. Through Bill Wherry's railroad connections the Board always traveled in a private car. While going or coming on some of these trips, a little sightseeing was possible. One trip included the Grand Canyon, another Yellowstone Park. Bill saw to it that all our wants—and they differed with some of the members of the Board—were minutely cared for. Every trip abounded in examples of his generosity and of his careful concern for each member and his wife, if she was along. Checking the baggage for the whole party was turned over to a younger member. Woe betide him if a piece was misplaced or lost. The whip cracked again.

While this is the tale of Bill Wherry, it cannot be complete without a word about Bill's wife Eugenia. Bill never could have compiled his remarkable record without an understanding, devoted and unselfish wife. Mrs. Wherry was such a wife, so Bill could be free to do all he did.

All of this drive and the way Bill failed to spare himself in order to help others brought on coronary disease in 1940, two years before his death. This did not slow him up. A severe attack occurred during a Board examination in Philadelphia in June 1942. He was able to make the trip back home to Omaha, but he survived this by only one week.

Bill Benedict, our present efficient secretary, who has carried on in the Wherry

manner for the last fifteen years, wrote an editorial on the late Bill's death. He said:

> While he was mindful of the excellence of scientific proficiency attained by a few students and the necessity to have such trained men as teachers, he never lost sight of the local doctor nor the need to keep urging those, who were so situated that it was not possible to maintain a standard of high professional attainment in their own practice, to pool their experiences in a common forum for discussion. Education to Dr. Wherry was versatile, vital and dynamic. It required only direction.

One man direct education? That is just what Bill Wherry attempted!

In another part of his "Introspections" at Thanksgiving time 1941 Bill Wherry wrote:

> Few are qualified or have the warrant to preach or to moralize. However, this is Thanksgiving Day, and I am grateful for the continued privilege of building to my ideals and the further privilege of freely expressing myself unhampered by a dictated censorship.
>
> Should not this thankfulness be universal and be expressed by all of us in a real way, to the end that those of reasonably sound mind and body resolve to do more, to act with a firm resolve, to carry on our joint ideals and traditions, to the end that 1942 may measure up to the attained results evidencing raised rather than lowered standards?
>
> Medicine has always been an honored profession; true, some of its personnel are substandard, but taken as a whole, if standards are maintained, Medicine, good Medicine, will survive. Let us be thankful. Let us not stoop to follow lines of least resistance to the detriment of the long established principle.
>
> In this connection, perhaps the underlying purpose prevailing in the minds of the group who, in 1925, perfected the reorganization of the Academy was to help the Fellow within our field, substandard in his specialty, but ambitious to better himself. The Examining Board activities forced the realization. The group mentioned accepted the responsibilities and made it plain in the original protocol that, after all, if a specialized group contained a large ratio of substandard men, the group was to be blamed. This theme, namely, to raise the standards within our own group and by ourselves, is still the objective of the Academy.
>
> Let us be thankful that much has already been accomplished.

This expresses Bill's motives and ideals better than anyone of us can put them into words. Much had been accomplished indeed!

Dr. H. P. Mosher concluded his monograph on Bill Wherry with the following paragraph:

> When you attempt to visualize Dr. Wherry, you sense in the activities of his youth the making of a strong man and see in his maturity the many accomplishments of a man strong in action. One recognizes a colorful and very human life. Dr. Wherry's most striking ability was in organization, and in his easy mastery of detail. Two medical societies, the Academy and the American Board of Otolaryngology, reached their present high position mainly through his efforts and foresight. As a physician he was much broader than his specialty. He was intensely interested and continually occupied with the betterment of medical education. In this matter he was constructive and had the forward look. His life sums up as one of large attainment, a rare life in its widespread influence, an influence which cannot fail to be lasting.

This is the story of Dr. William Wherry, whom we honor annually by a lecture given in his name.

When you hear the story of such an unusual life, you feel like getting on your feet and acclaiming it with loud praise or going down on your knees in grateful remembrance. I suggest we do neither. Rather let us in imagination try to beam through a ray to Bill in that Valhalla where all really good physicians go. I think we ought to try the beam of medical education, for that will get to him there if any will.

Hello! . . . Hello! Is this Bill Wherry? Oh! It is you, Bill! Yes. . . . Well, Bill, I have been telling the younger men of the Academy (you know, the ones who have come in since you turned over the reins to Bill Benedict) about you and your hopes for the Academy and for medical education in the area of our spe-

cialties. They have listened carefully and have seemed impressed with what I have had to say. But, Bill, that is not the reason why I hoped to get in touch with you this afternoon.

What I want to do is to introduce these new men to you. Here they are. Just think, there are 2,386 of them. Bill, I'm happy to say they are a smarter bunch than you knew, much as you admired those around you in 1942. They are much better trained; half of them have gone through three years of residency instead of the former two years. They are capable in a good many more areas than you and I knew in the twenties and thirties. Because of this better training and greater capability they are held in greater respect than we were.

There have been discoveries which have changed the direction of our specialties, otolaryngology perhaps more than ophthalmology. But I am happy to report to you, sir, that the over-all direction has been upward, distinctly so. These fellows have helped immensely in making our teaching, both graduate and undergraduate, better. Already some of them are among the best teachers in the Academy Instruction Courses, and they are beginning to work into the organization of the Academy and doing a grand job.

Speaking of the Academy, Bill, it is going great guns under Bill Benedict's supervision and care. It is traveling on the paths you set, only bigger and better. And the Board, Bill. Only last week it voted to include a year's training in surgery in addition to the regular three years in otolaryngology. We do radical neck surgery much more than in the old days. The Board had to do this so that we could all hold up our heads in front of the general surgeon, who now demands five years of training for himself. It's a great day, Bill, and you can be proud of the things you started which make all this possible. Thanks a lot. . . .

What's that? . . . Oh, you know all this? . . . Come to think of it, of course you do. . . . You think we have done well but not as well as we should? . . . You're a bit surprised we haven't accomplished more? . . . That we haven't yet solved the riddles connected with glaucoma and iritis and the causes of otosclerosis, of allergy and of perceptive hearing loss? . . . But that's quite a list, Bill. . . . You know it is and that's why we should get on the ball? . . . Uh huh . . . uh huh. . . . We should have even better teaching than we have so there would be fewer men flunking the Boards? . . . We should be further along that we are? . . . We ought to be way in the lead because ophthalmology and otolaryngology were the first to have Boards, years before the others? . . . and the Academy? . . . It ought to be even better and stronger than it is now so our two specialties will be landmarks to which all the other specialties will point with envy? . . . Get going? . . . Stop being satisfied? . . . [crack of a whip].

There, we have lost contact, but just before we did I heard the crack of his whip again . . . and I'm glad I did.

Did you hear it too?

Data for this presentation have been obtained from personal communications from Dr. W. L. Benedict, Miss Clare McGovern, and Mrs. William Wherry. There are liberal quotations from the article on Dr. W. P. Wherry by Dr. H. P. Mosher in the TRANSACTIONS of the American Academy of Ophthalmology and Otolaryngology, July-August 1942, and extracts from the minutes of the Academy from 1920 to 1942.

Pictures used in this presentation have been obtained through the courtesy of Dr. W. L. Benedict, Miss Clare McGovern, Dr. Arthur Proetz and Dr. Dean M. Lierle.

MUSCULOPLASTY: A NEW OPERATION FOR SUPPURATIVE MIDDLE EAR DEAFNESS

J. H. THOMAS RAMBO, M.D.
NEW YORK, NEW YORK

SURGICAL efforts to improve hearing in deafness resulting from chronic otitis media have been attempted in a variety of ways during the past eighty years. To Moritz, Zollner, and Wullstein, however, must go complete credit and our thanks for demonstrating the practical possibilities of functional surgery of the middle ear. Their contributions since 1952 have created world-wide interest in a new approach known as tympanoplasty, with which, by now, we are all more or less familiar.

The purpose of this paper is to present a new operation which has developed along somewhat different lines. Almost eight years ago I began my first efforts to devise a standardized operation for the purpose of eliminating infection and restoring hearing in chronic otitis media. From the beginning my concept of such an operation was that it would consist of three orderly steps: The first step would be the elimination of all diseased tissue; the second step would be the reconstruction of an air-containing middle ear cavity, and the third step would be the re-establishment of a new system for sound conduction to the inner ear.

Effective procedures for the first and third steps of the operation were already available. The first would employ the radical mastoidectomy, providing the surgeon with the great advantage of always being able to remove all diseased tissue, regardless of the type or amount present. The third step would make use of the fenestration operation. This would be the most reliable and predictable way to re-establish a system of sound conduction to the inner ear, to replace a destroyed ossicular chain. But the use of both these proved and established techniques would depend on finding a solution to the problem of the second step: that of plastic reconstruction of an air-containing middle ear cavity. This had

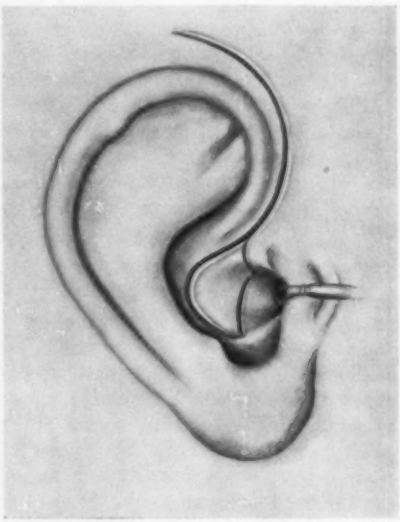


FIG. 1—Endaural incisions are made. The superior endaural incision is extended upward and backward over the auricle, as indicated, to make it easier to expose the temporal muscle later in the operation. This extended incision into the hair-growing area is sutured at the completion of the operation.

From the Department of Otolaryngology, New York Eye and Ear Infirmary.

Presented at the Sixty-Second Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 13-18, 1957, Chicago.

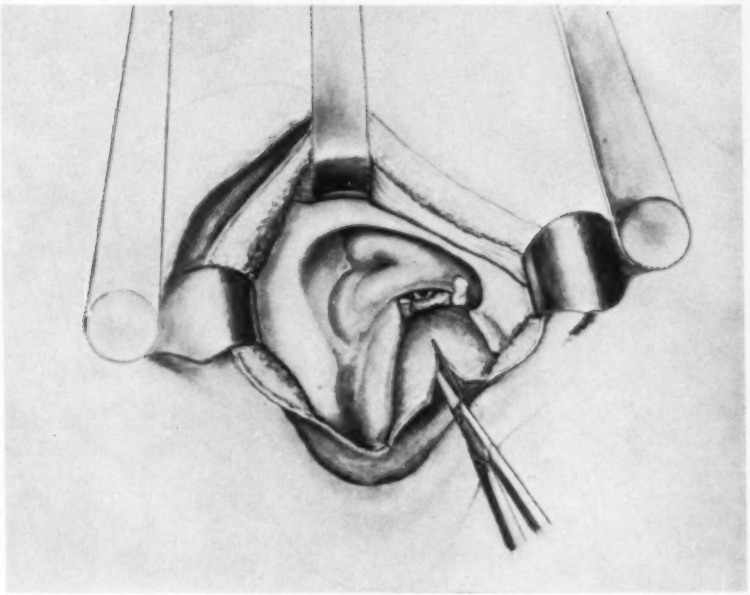


FIG. 2—The mastoid is exenterated to remove all diseased tissue; the bony posterior canal wall is taken down; and at this point in the performance of the radical mastoidectomy steps are taken to preserve the external auditory canal skin for future use in the plastic procedures. These steps begin with a scissors incision through the middle of the posterior canal wall skin all the way to the drum.

always been the big stumbling block, and it would become an even greater difficulty if an initial radical mastoidectomy were performed. Total reconstruction of an air space would then have to be accomplished without relying on retained remnants of middle ear structures to support plastic procedures.

In trying to solve the problems in this step, in 1949 and 1950 at the Lempert Institute I tried many methods to build a middle ear air space using free skin grafts taken from the thigh. Poor blood supply to these grafts, laid on bone and stretched across a large air space, was one of the principal difficulties. Another was the trouble in maintaining the newly created air space, which was usually obliterated by fibrosis in the middle ear. These obstacles made the construction of an air-containing middle ear cavity using free skin grafts unpredictable, in my hands at least. About two years ago I was able to develop a new technique, using a flap from the temporal muscle, which solved these difficulties and thereby made possible a reliable standardized operation.

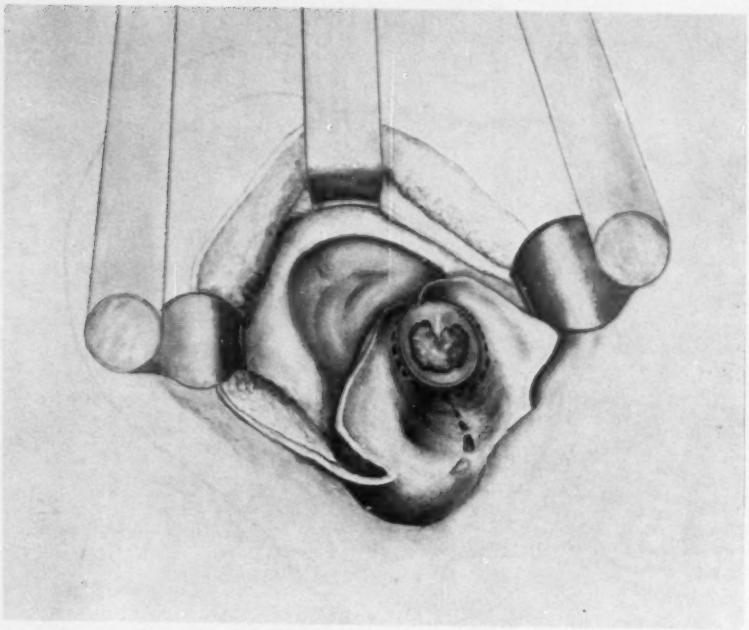
OPERATIVE TECHNIQUE

The operation is performed as a one-stage surgical procedure. For convenience in describing the surgical technique I shall, however, continue to divide the operation into three steps.

First Step

In the first step, to eliminate diseased tissue, the radical mastoidectomy is used (figs. 1, 2, 3, 4, 5, and 6).

*Legends for figures 1 through 12 are on page 173.



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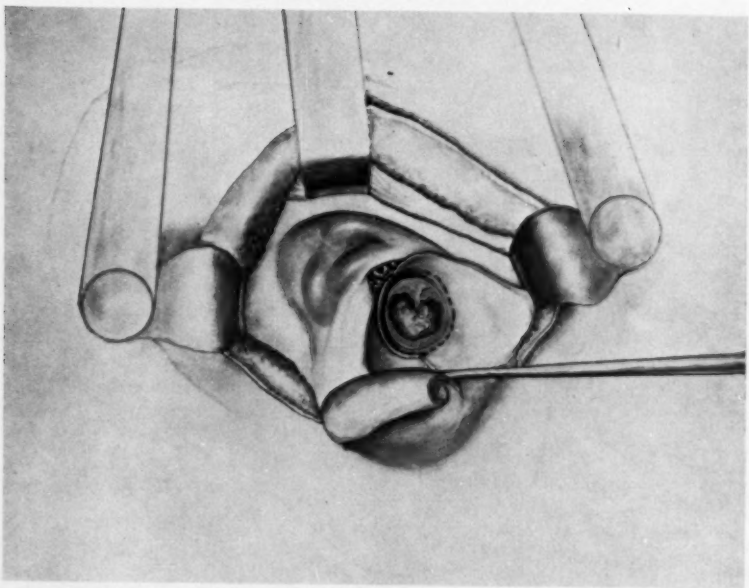

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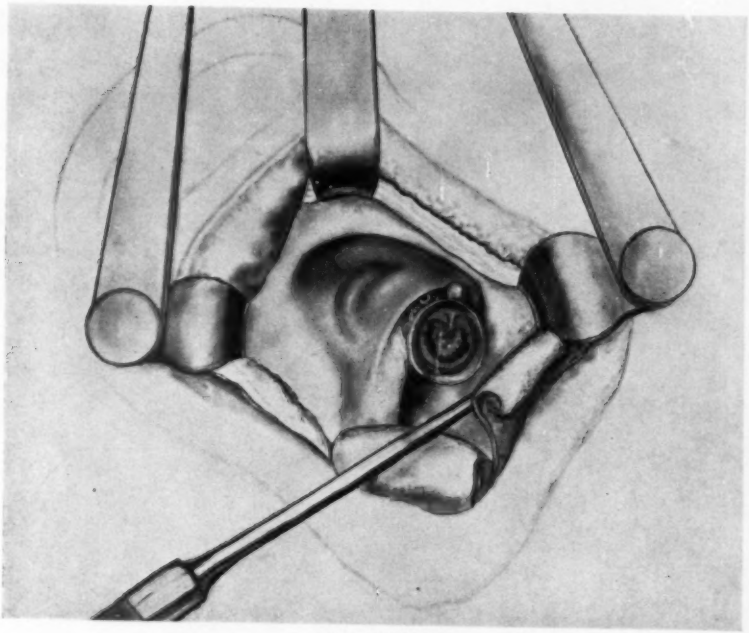

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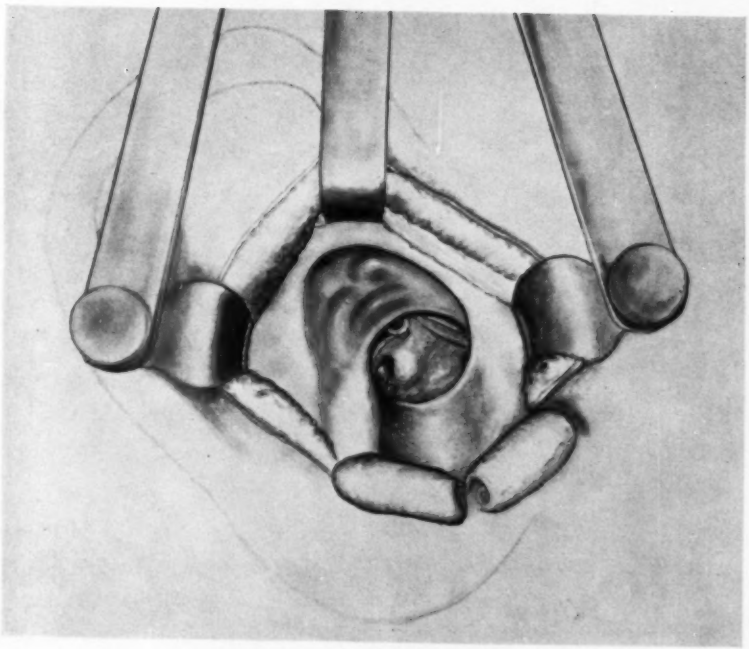

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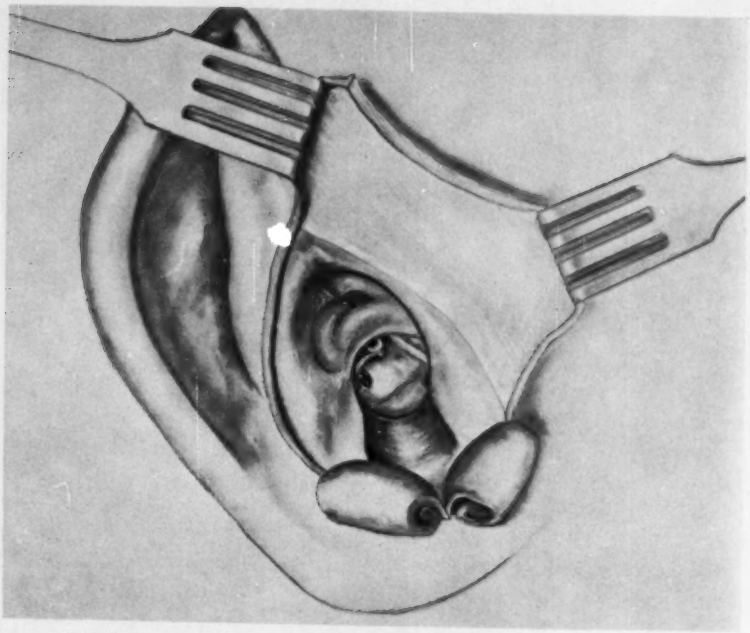

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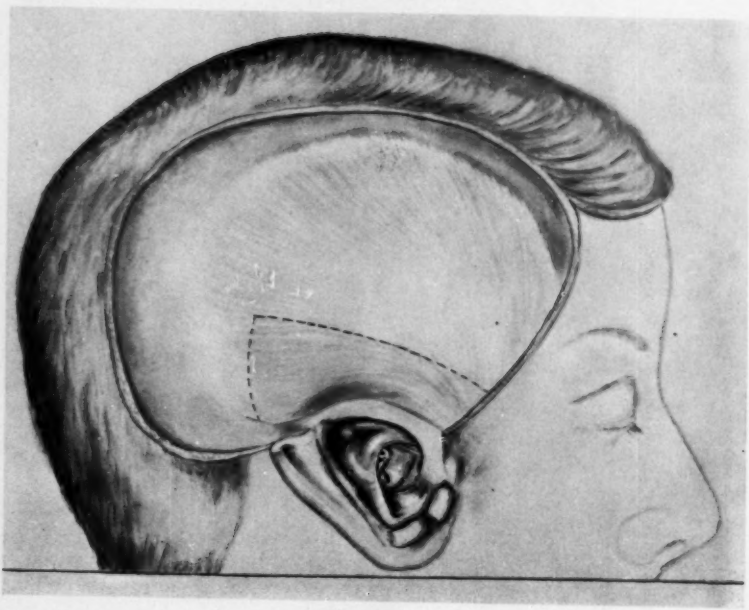

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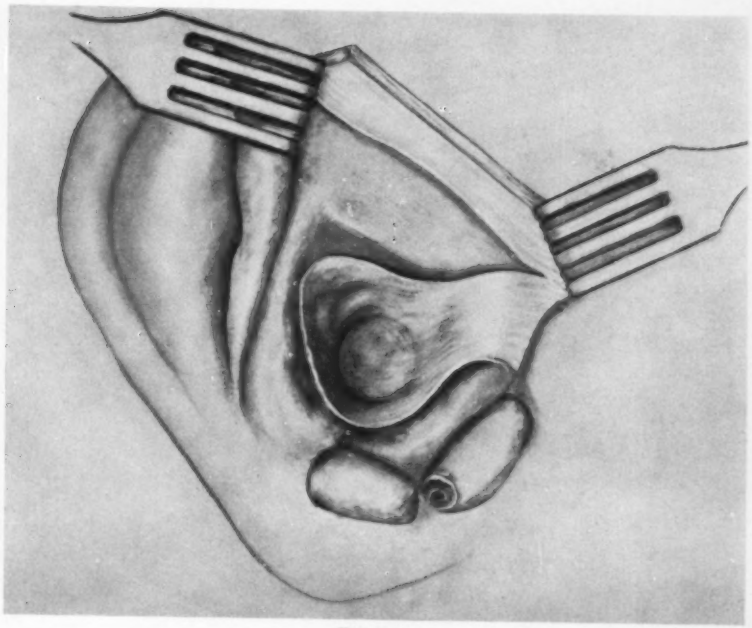

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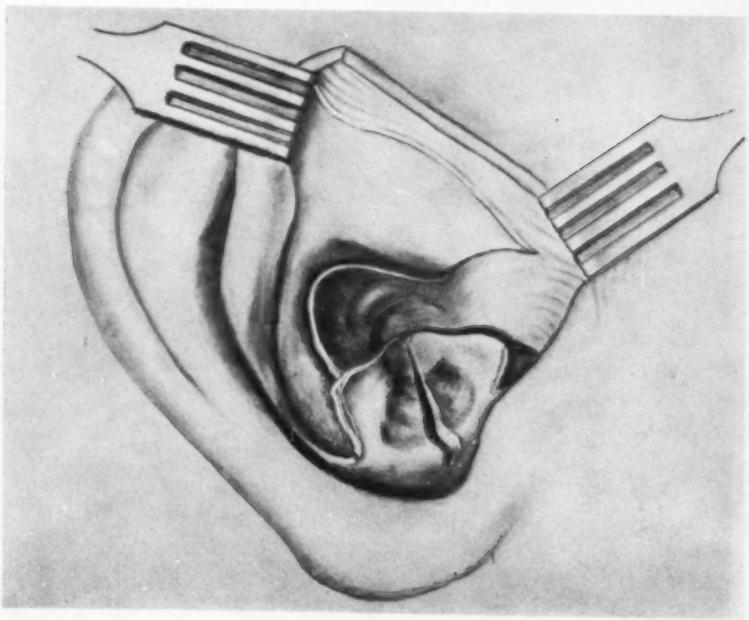

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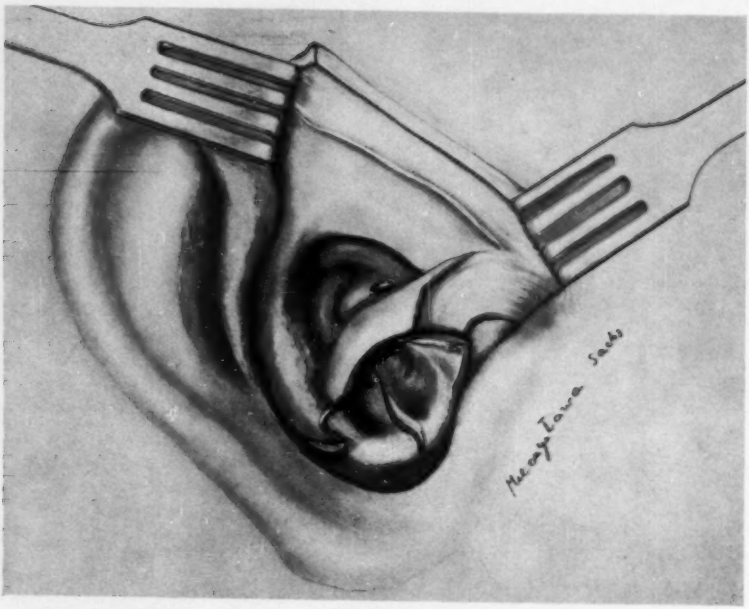

FIGURE 11.

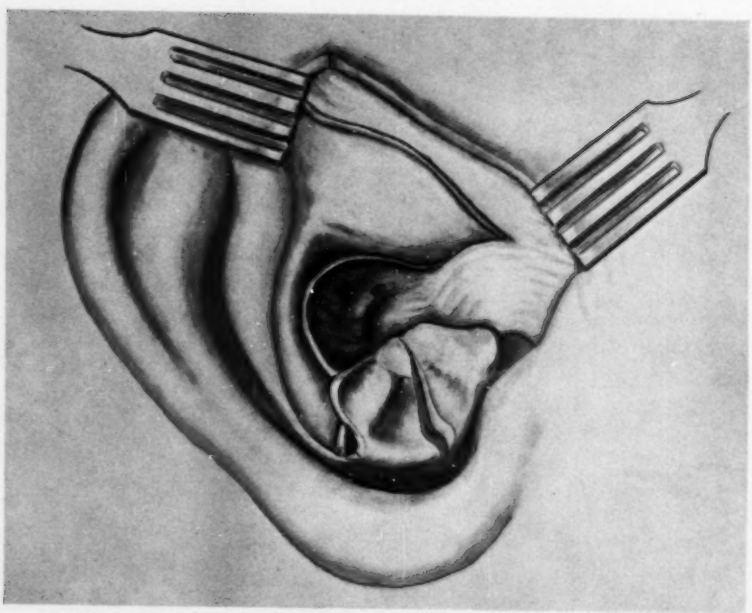

FIGURE 12.

Second Step

The second step of the operation deals with the plastic reconstruction of an air-containing middle ear cavity. This is accomplished by using a flap from the temporal muscle to cover the middle ear space and the horizontal semicircular canal (figs. 7, 8, 9, and 10).

Third Step

The third step in the operation is the re-establishment of a sound-conducting mechanism. With a reliable way to remove diseased tissue, and a reliable way to reconstruct a permanent, disease-free middle ear air space, we can do this on the basis of the fenestration procedure (figs. 11 and 12).

ADVANTAGES OF THE TECHNIQUE

First Step

I believe a radical mastoidectomy is a necessary first step in an operation to restore hearing in chronic otitis media, for the following reasons:

1. Disease leading to middle ear deafness may be caused by one or more of several different pathologic processes. These are osteitis of bone, osteomyelitis of bone, fibrous granulation tissue, polypoid granulation tissue, and cholesteatomatous activity. I know of no other procedure which would enable the surgeon to get at and routinely remove varying amounts of such diseased tissue. The thorough removal of all diseased tissue is necessary for plastic procedures that follow, which are bound to fail if infection is present.

2. By widely exposing the middle ear it permits proper inspection of the eustachian tube orifice, the round window, and the mucosa over the promontory.

3. The initial use of the radical mastoidectomy permits the creation of a standardized operation by reducing every temporal bone to the same anatomic situation — the end point of a radical mastoidectomy. Beginning at this point, which is constant in every case, the plas-

LEGENDS

FIG. 3—The lumen of the auditory canal is then exposed to reveal the drum. With such exposure a circumferential incision can then be made just external to the annular ligament. This is followed by a perpendicular incision from the drum outward which bisects the canal skin into two parts, each with a pedicle attachment.

FIG. 4—The skin forming the inferior pedicle flap is elevated. Elevation of the skin as two separate pedicle flaps instead of one makes it easier to prevent tearing.

FIG. 5—The superior pedicle flap is then elevated. With these skin flaps out of the way, remnants of the drum and ossicles can be removed and the radical mastoidectomy completed.

FIG. 6—Completion of the radical mastoidectomy, with meticulous removal of all diseased tissue. The orifice of the eustachian tube must be open; the round window must be unobstructed; and every effort should be made to maintain a suitable mucous membrane over the promontory.

FIG. 7—The exposure of the temporal muscle gained at operation. Adequate exposure is accomplished by extending the superior endaural incision upward and backward over the top of the auricle and by separating the loosely attached scalp from the temporal fascia. The temporal muscle is covered superficially by a strong temporal fascia and underneath by a periosteal membrane. It is ideally situated and suited for reconstructive plastic surgery of the middle ear.

FIG. 8—The temporal muscle pedicle flap is cut as indicated. The flap receives an ample blood supply, mainly from the posterior deep temporal artery which courses upward and backward in the area of the muscle included in the flap.

FIG. 9—The pedicle flap of the temporal muscle is brought down into the radical cavity to bridge over the middle ear space and to cover the horizontal semicircular canal and the floor of the mastoid.

FIG. 10—The two pedicle skin flaps, previously prepared from the skin of the auditory canal, are brought down over the muscle flap.

FIG. 11—The muscle flap is elevated and a fenestra is made in the horizontal semicircular canal, using the dry cupola technique advocated by Lempert.

FIG. 12—The temporal muscle flap is replaced to cover the fenestra. A small polyethylene tube is left in the middle ear for a period of seven days as a drain from the middle ear cavity. A free split-thickness skin graft may be added to the floor of the mastoid cavity and the sinodural angle.

tic techniques for rebuilding a middle ear air space can always be the same, and the operation can be concluded by using another standardized technique, the fenestration procedure. A standardized operation is not possible if remnants of the middle ear structures are preserved, since then plastic reconstruction requires many variations in the operative technique to fit the pathologic findings in each individual case.

Second Step

In constructing a permanent air-containing middle ear cavity, a temporal muscle plasty provides several very distinct advantages:

1. The temporal muscle flap is fixed above and can be stretched across the middle ear space and fixed in the sinodural angle by packing. It is also thick enough to avert any tendency to collapse into the middle ear cavity, as a free skin graft is likely to do. Hence there is no need for measures to support a skin graft such as leaving remnants of the drum, or leaving a bony bridge at the notch of Rivinus, or packing the middle ear with fibrin foam.

2. The tissue components entering into the formation of the middle ear covering are pedicle flaps with pedicle blood supply. Furthermore, the pedicle skin flaps overlie the well-nourished muscle flap instead of overlying an air space. These features ensure good blood supply in the plastic reconstruction which is necessary if the method is to be reliable.

3. I believe there may be one other advantage to using a muscle plasty. Covering the middle ear with the relatively thick part of the temporal muscle affords greater protection to the round window. It has been said that after a fenestration operation the best hearing occurs when the fenestra is as open as possible and the round window as blocked as possible. Skoog and Nilsson, Rytzner, Shambaugh, Lempert, and others have demonstrated this clinically by placing Aquaphor ointment in front of the drum in postoperative fenestration cases to obtain better phase differentiation and better hearing. I think we get the same blocking of the round window by virtue of the increased thickness of the temporal muscle over that of the normal tympanic membrane (fig. 13).

Third Step

The advantage of using the fenestration procedure is that it provides the most reliable and predictable method that we have today for re-establishing a system of sound conduction to the inner ear. This is so because in this procedure there is a bypassing of the fixation in the middle ear, whether due to otosclerosis or cicatricial tissue. In a reconstructed middle ear air space, whether disease has healed spontaneously or has been removed by operation, scar tissue is inevitably formed. Therefore, for restoring hearing in conductive deafness, a system that is not dependent on pathologic conditions at the oval window will prove to be far more reliable in obtaining permanent hearing.

REPORT OF CASES

All of the patients operated on had bilateral chronic otitis media with poor hearing on both sides. Four patients wore hearing aids, one wore a Pohlmann prosthesis, and one, an unmarried female, refused to wear a much-needed aid. All of the ears operated on were actively suppurating two weeks prior to admission for operation, at which time local medication was begun to minimize the active infection so far as possible. Operations in all cases were performed as one-stage surgical procedures. In none of these cases has it been necessary to inflate the middle ear postoperatively to maintain the air space. Audiograms represent hearing maintained to the present

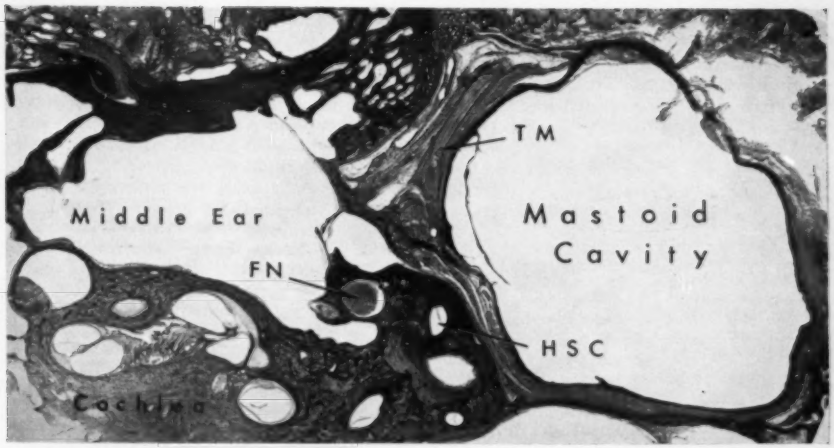

FIG. 13—Musculoplasty in the Macacus rhesus monkey, three months after operation. Section of the temporal bone is through the long axis of the external auditory canal. TM—pedicle flap from the temporal muscle; HSC—horizontal semicircular canal; FN—facial nerve.

Note the following: (1) how well the thicker anterior portion of the temporal muscle flap bridges the middle ear cavity after a previous radical mastoidectomy; (2) the protection provided to the round window by this portion of the muscle; (3) the appropriate thickness of the thinner posterior portion of the temporal muscle flap over the horizontal semicircular canal; (4) the good blood supply to the plastic reconstruction as indicated by the normal appearance of the temporal muscle structure, showing no evidence of histologic change after three months, and by the complete epithelization of the mastoid cavity.

time, except in case 1. In this case the audiogram represents the hearing four months after operation, at which time the patient was killed in an automobile accident.

Case 1. Operation: November 11, 1956. The ear of this 30-year-old secretary had been discharging for twenty-six years. Three previous operations had been done: a simple mastoidectomy at the age of 11, a modified radical at the age of 18, and a radical mastoidectomy at the age of 24. None of these operations had been successful in stopping the discharge. When I saw the patient, the eustachian tube was open to the middle ear, as demonstrated by passing a bougie, and there was a suitable-appearing mucosa over the promontory. These two circumstances, not usually found in the postoperative radical, suggested the possibility of performing the first musculoplasty. The result was an average gain in hearing of 38 decibels in the three speech frequencies, reaching the 15 and 20 decibel level (fig. 14).

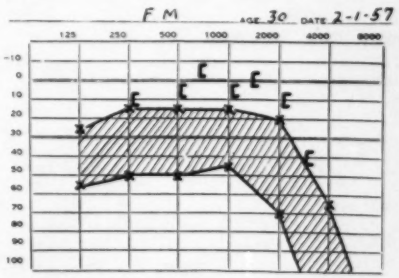

FIG. 14—Symbols for figures 14 through 19: O, right ear; X, left ear;], right bone; [, left bone.

Case 2. Operation: April 19, 1957. A 39-year-old male accountant with an ear that had been discharging for thirty-two years. There was a kidney-shaped perforation occupying about one half of the drum area. The findings at operation were an extensive cholesteatomatous matrix covering the posterior two thirds of the promontory, the antrum, and the floor of the mastoid cavity. There were no ossicles and no stapes crura. The cholesteatomatous

matrix was carefully peeled away, leaving a thin atrophic membrane over the promontory. This was not disturbed. A musculoplasty was performed which resulted in an average hearing gain of 32 decibels in the three speech frequencies, reaching the 20 decibel level (fig. 15).

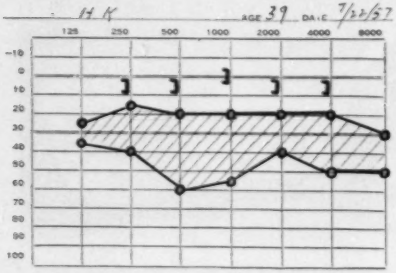

FIGURE 15.

Case 3. Operation: April 26, 1957. A 16-year-old high school student with an ear that had been discharging since she had had pneumonia, complicated by a middle ear abscess, at the age of 2. The tympanic membrane was present only in Schrapnel's area. The findings at operation were infected granulations in the mastoid, a partially destroyed incus, and a slightly edematous but smooth mucosa over the promontory. The performance of a musculoplasty resulted in an average gain of 23 decibels in the three speech frequencies, reaching the 15 and 20 decibel level (fig. 16).

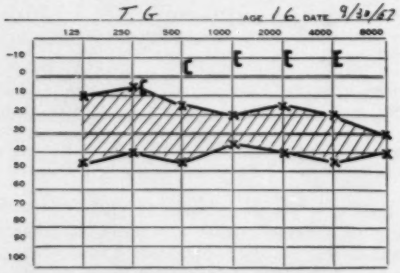

FIGURE 16.

Case 4. Operation: June 21, 1957. A 39-year-old proofreader with an ear that had constantly discharged since she had had measles at the age of 2, and on which a simple mastoidectomy had been performed at that time. The tympanic membrane was completely destroyed except in Schrapnel's area. At operation, infected granulations were found in the mastoid, the ossicles were embedded in dense granulation tissue, and the middle ear was filled with polypoid granulation tissue. When the polypoid granulation was removed from the middle ear, a fairly smooth mucous membrane was found over the promontory. A musculoplasty was done with an average hearing gain of 33 decibels in the three speech frequencies, reaching the 20 decibel level (fig. 17).

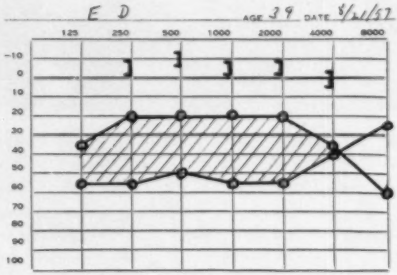

FIGURE 17.

Case 5. Operation: July 8, 1957. A 49-year-old dentist with an ear that had been discharging for over forty years. The tympanic membrane was absent except in Schrapnel's area. At operation infected granulations were found in the mastoid. The ossicles were embedded in dense fibrous granulation tissue. What appeared to be a suitable mucosa over the promontory prior to operation proved to be squamous epithelium grown down into the middle ear from the drum remnants. The eustachian tube orifice was effectively blocked by this epithelium. The squamous epithelium

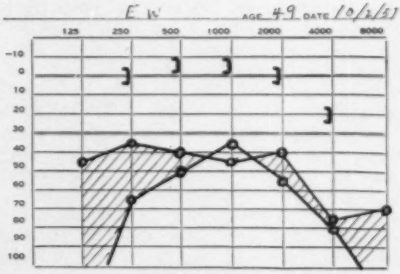

FIGURE 18.

was carefully peeled away from the promontory and the mouth of the eustachian tube, leaving a thin, atrophied membrane over the promontory and an open eustachian tube. A musculoplasty was performed. Following operation there was a marked drop in hearing due to a traumatic labyrinthitis. This loss was gradually recovered over a period of six weeks to approximately the preoperative level. The cross-hatched area in figure 18 represents the loss rather than the gain in this case. The patient, three months after operation, has a dry ear and hears normal conversation at four feet with masking in the opposite ear—about the same as before operation.

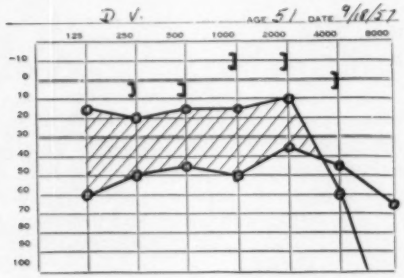

FIGURE 19.

Case 6. Operation: August 30, 1957. A 54-year-old sanitation department worker with a discharging ear for a period of twenty-eight years. At operation the mastoid contained infected polypoid and fibrous granulation tissue. The antrum was filled with dense fibrous granulation tissue in which the incus and head of the malleus were buried. In the middle ear, a thick pad of fibrous tissue was covered by a false fibrous drum. When these were removed, a suitable-appearing but thickened membrane remained over the promontory, which was not disturbed. The orifice of the eustachian tube was open but narrowed. A musculoplasty was performed with an average gain in the three speech frequencies of 30 decibels, reaching the 15 and 10 decibel level (fig. 19).

DISCUSSION

JULIUS LEMPERT, M.D., New York: Based upon my observations in a preoperative and postoperative study of patients subjected to the performance of a musculoplasty by Dr. Rambo, I believe that time will tell that his logically conceived one-stage surgical technique for the restoration of practical, serviceable hearing in advanced cases of chronic adhesive forms of deafness is physiologically correct.

This technique, which after the removal of all diseased tissue in the temporal bone, employs the viable temporal muscle to recreate a covered and sealed air-filled tympanic cavity and also to cover and seal a newly created extratympanic vestibular fenestra, renders the restoration of practical serviceable hearing predictable preoperatively and makes possible the continuous maintenance of the postoperatively obtained hearing improvement.

The musculoplasty is, therefore, a basically sound technique and is acceptable for the restoration of practical, serviceable hearing in chronic adhesive forms of deafness. I congratulate Dr. Rambo on his timely contribution to otologic surgery.

DR. RAMBO: I want to thank Dr. Lempert for discussing this paper. It has been my great good fortune to have profited from his valuable teaching and his sound advice, which was always available when needed. Without his valuable instruction in the meticulous performance of the radical mastoidectomy and fenestration procedures which are known to all of his students, this work would not have been possible.

I should also like to express my indebtedness here to Dr. Swift Hanley and Dr. Ernest Weymuller, on whose service at the New York Eye and Ear Infirmary in New York most of these cases were done.

CONTROLLED PASSIVE RESPIRATION UNDER GENERAL ANESTHESIA FOR PERORAL ENDOSCOPY

With a Proposed Extension of the Jackson-Huber Nomenclature of Bronchopulmonary Segments

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[A film was presented (16 mm., silent, color) which depicts the authors' use of general anesthesia for peroral endoscopy.]

THIS method has been utilized at the Long Island College Hospital for the past two and one-half years. Essentially, it consists of the use of a short-acting barbiturate intravenously, in just sufficient quantity to abolish the lid reflex, an ultra short-acting muscle paralysant (succinylcholine), also intravenously, to the point of complete paralysis (apnea), and the utilization of a mechanical thoraco-abdominal respirator such as those developed for patients with poliomyelitis. This respirator permits controlled passive respiration with the patient lightly asleep and paralyzed. The detailed description of this method will be the subject of a separate paper. Toker in South Africa and Green and Coleman in Great Britain have recently reported a similar method.

We feel that with this method we can safely utilize general anesthesia for peroral endoscopy and have done so in several hundred cases. It has the following advantages:

1. Induction is rapid and not unpleasant.

2. The technique is nonexplosive.

3. The cough reflex is absent or present, as desired.

4. There is rapid and early return of consciousness and protective reflexes because very little barbiturate is used, and the muscle-relaxant succinylcholine is extremely rapidly metabolized.

5. Periods of apnea with cessation of all respiratory motion may be achieved for short periods for careful examination of a particular area, or for delicate instrumentation, merely by turning off

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Dr. Owre is in the Department of Anesthesiology, Long Island College Hospital.

Dr. Bienias was a resident in the Department of Otolaryngology, Long Island College Hospital, at the time this research was done, and is now assistant instructor in the Division of Otolaryngology of the State University of New York Downstate Medical Center.

Presented at the Sixty-Second Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 13-18, 1957, Chicago.

the mechanical respirator, or by disconnecting it from the chest piece (cuirass).

6. There is marked relaxation of all muscles. This permits great ease of positioning, with wider than normal excursions of the head and neck possible. It is this factor which enables us to get a little farther out into the tracheobronchial tree, so that in many cases we can visualize quaternary or subsegmental bronchi. We have, for example, been able to take tissue for biopsy directly from upper lobe bronchi. This factor of relaxation and the absence of cough reflex, with resultant ability to visualize quaternary bronchi, have prompted us to propose an extension of the Jackson-Huber nomenclature of the bronchopulmonary segments, which will be referred to later in this article.

7. This method passively reproduces the normal respiratory motions of the tracheobronchial tree. This is of considerable diagnostic importance because changes in normal passive mobility of a segmental or subsegmental bronchus due to tumor outside its walls may often be seen long before the neoplasm becomes visible endobronchially.

8. The proximal end of the bronchoscope need not be closed, with resultant inconveniences in instrumentation, as in some methods of intrapulmonic gaseous general anesthesia.

9. In esophagoscopy (a nasotracheal tube is first passed to guard the airway), there is complete relaxation of the cricopharyngeal sphincter so that the esophagus is entered quite easily. And, again, normal motions of the esophagus on respiration are reproduced.

10. In laryngoscopy, ease of positioning brings even the most difficult case to complete visualization, including the anterior commissure. For delicate removal of benign tumors, all motion can be momentarily stopped as noted in (5) above.

We feel that the foregoing are real and definite advantages. However, it must be stated that care and attention to detail are extremely important. The careful, proper fit of the chest piece, or cuirass, is vital. The anesthetist and endoscopist must work as a team, with purposeful motion well coordinated (figs. 1 and 2).

As a result of this type of anesthesia, which we have used routinely in approximately 250 cases, we have been able to visualize more distal bronchi than is usually possible with topical anesthesia. This is so because the patient is asleep, is completely atonic, and is being adequately ventilated by the respirator. Therefore, the need for haste is eliminated, motion at the head and neck is possible through a wide range, the normal physiologic motion of the bronchi is present, and cough is absent; consequently, it becomes possible to insert the bronchoscope more distally than is usual in about 40 per cent of cases.

In fact, we have found that the limiting factor became the size of the bronchoscope. Whereas, in the average adult we previously had used an 8 mm. $\times$ 40 cm. distally illuminated Jackson bronchoscope, we now use a 6 mm. $\times$ 40 cm. bronchoscope. This smaller diameter permits entry into the right upper lobe bronchus and its anterior and posterior segmental orifices, into the left upper lobe bronchus and its lingular orifice, into the middle lobe bronchus, and into the segmental orifices of both lower lobe bronchi. Furthermore, the 6 mm. bronchoscope will admit the Broyles optical bronchoscopes: foroblique, right-angle and retrograde. Inasmuch as the small size of this bronchoscope allows adequate air exchange around the bronchoscopic tube, one need not be concerned about obstruction of the bronchoscope by the telescope. Moreover, our technique

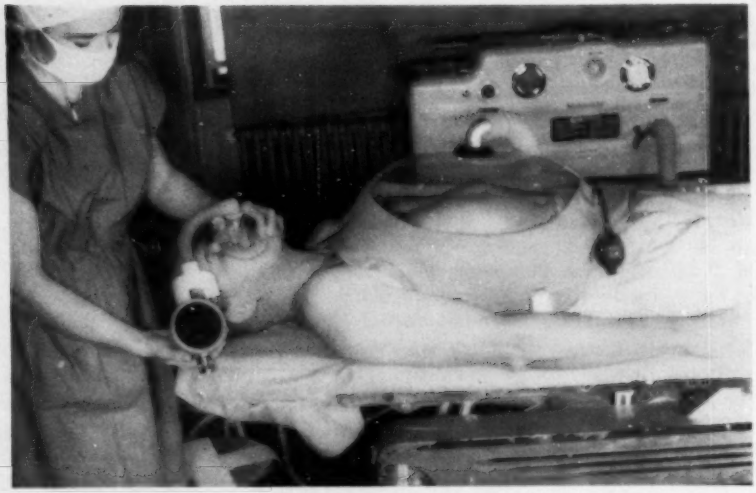

FIG. 1—One of several different types of cuirass which the authors have used. This plastic cuirass is transparent and so indicates the position of the patient's thorax and abdomen on expiration. See figure 2 for comparison with the position on inspiration. Note the mechanical respirator in background and the anesthetist measuring passive tidal volume with the respiration meter.

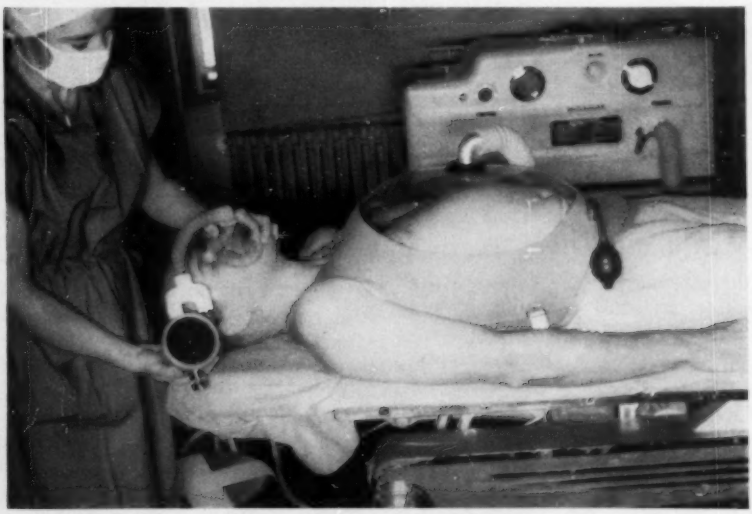

FIG. 2—The position of the thorax and abdomen on inspiration. Note that the cuirass rests on the clavicles, pubic crests and symphysis, and comes laterally beyond the midaxillary line. The proper fit of the cuirass is of very great importance in establishing adequate tidal volumes.

permits complete relaxation of the larynx and a wide glottic chink to further the security of adequate ventilation.

It would be well at this point to review certain terminology very briefly. The term primary bronchus we will take to mean right and/or left main bronchus; the term secondary bronchus refers to the following: right and left upper lobe bronchi, right middle lobe bronchus, and right and left lower lobe bronchi. Tertiary bronchi are the segmental divisions of the secondary bronchi, a few examples of which are: anterior, apical and posterior bronchi of the right upper lobe —or upper and lower (or lingular) divisions of the left upper lobe bronchus. These tertiary bronchi, or segmental bronchi, constitute the end-point of the present Jackson-Huber nomenclature. Certainly this classification has been of tremendous value in localizing lesions and other pathologic changes anatomically, so that all concerned, bronchoscopists, thoracic surgeons and radiologists, have been well oriented.

Beyond these tertiary bronchi lie fourth-order, or quaternary bronchi. It is with these that we now concern ourselves.

If a 6 mm. × 40 cm. bronchoscope is introduced in the average adult, the trifurcation of the right upper lobe bronchus or the bifurcation of the left upper lobe bronchus can actually be reached many times. Then the use of an optical bronchoscope permits additional examination of the subsegmental or quaternary bronchi. In a number of cases the bronchoscope can be inserted into the

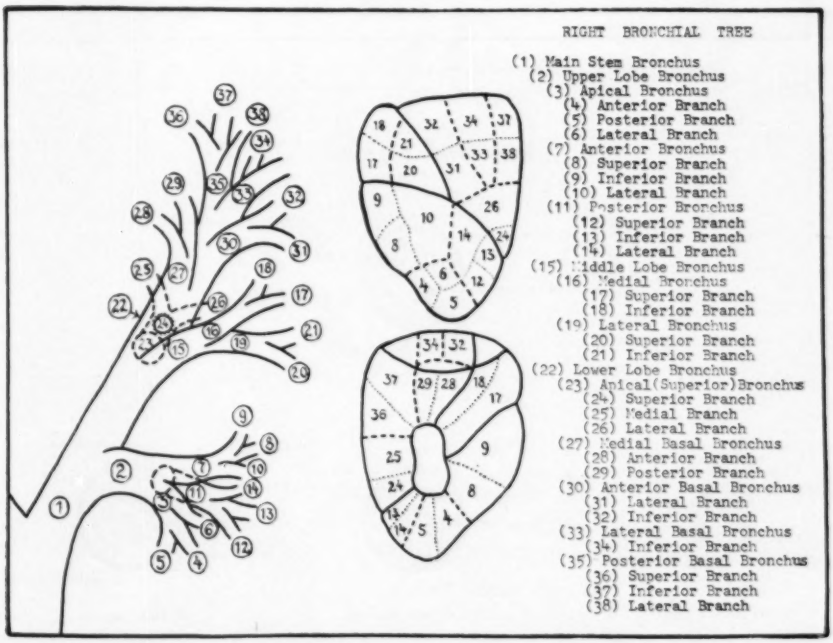

FIG. 3—Nomenclature for the right bronchial tree. Numbers 1, 2, 3, 7, 11, 16, 19, 22, 23, 27, 30, 33 and 35 represent Jackson-Huber nomenclature; all others represent the proposed extension.

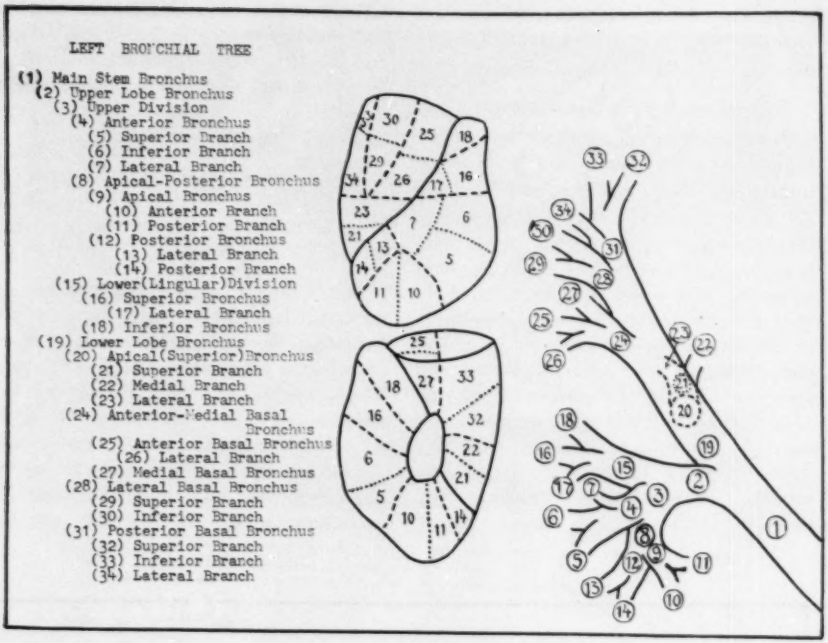

FIG. 4—Nomenclature for the left bronchial tree. Numbers 1, 2, 3, 4, 8, 15, 16, 18, 19, 20, 24, 28 and 31 represent Jackson-Huber nomenclature; all other numbers represent the proposed extension.

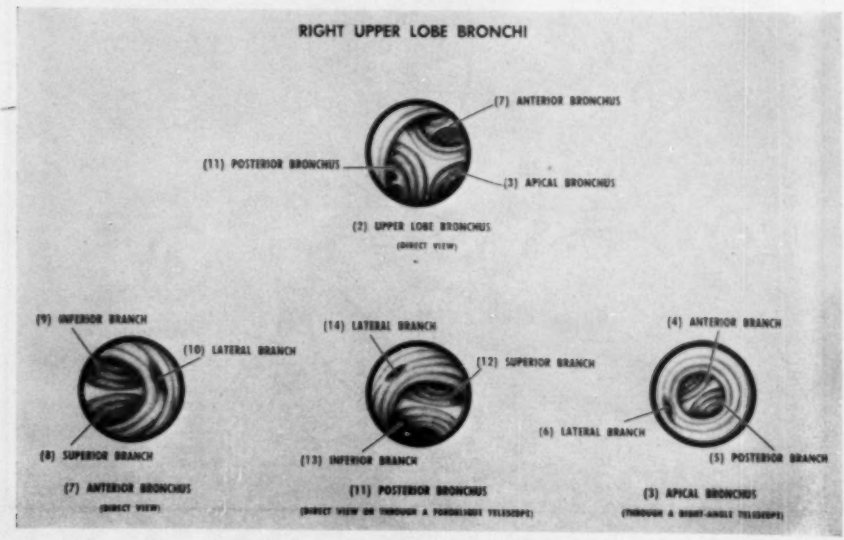

FIGURE 5.

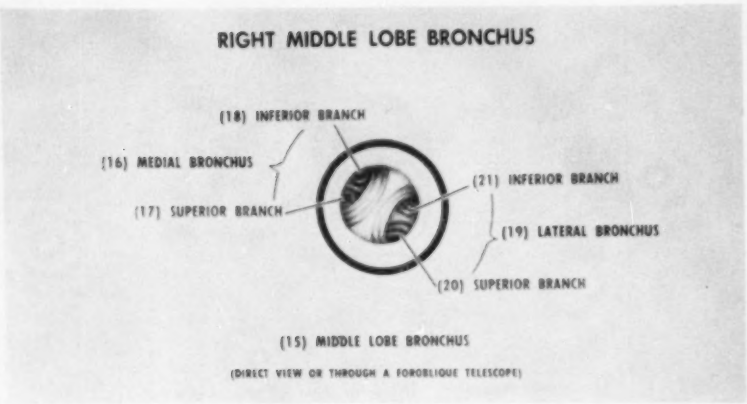

FIGURE 6.

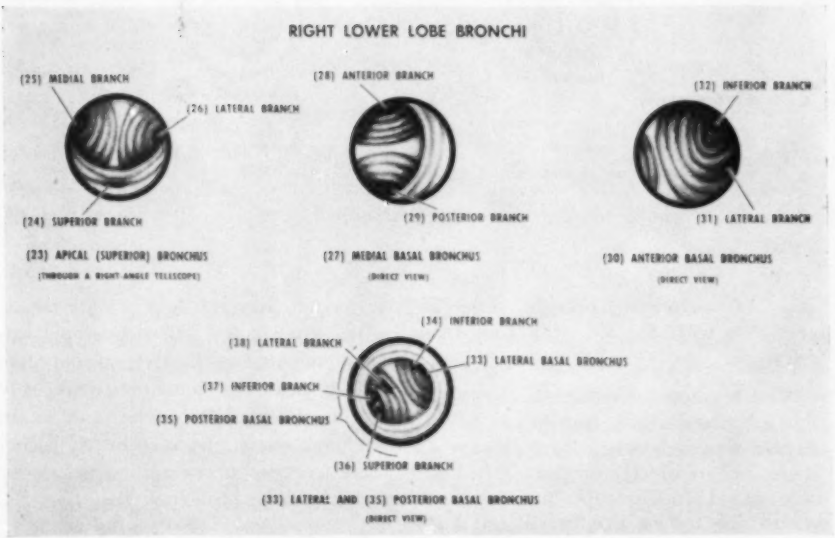

FIGURE 7.

orifices of the anterior and posterior segments of the right upper lobe bronchus, or into the lingular division of the left upper lobe bronchus. This, in combination with a suitable optical bronchoscope, makes it possible to view the orifices of quaternary bronchi. This technical achievement is of value because it is essential to know the specific source of bleeding or suppuration, the location of a foreign body, or the situation of a tumor.

The introduction of a small (i.e., 6 mm.) bronchoscope into the middle lobe bronchus demonstrates the tertiary and

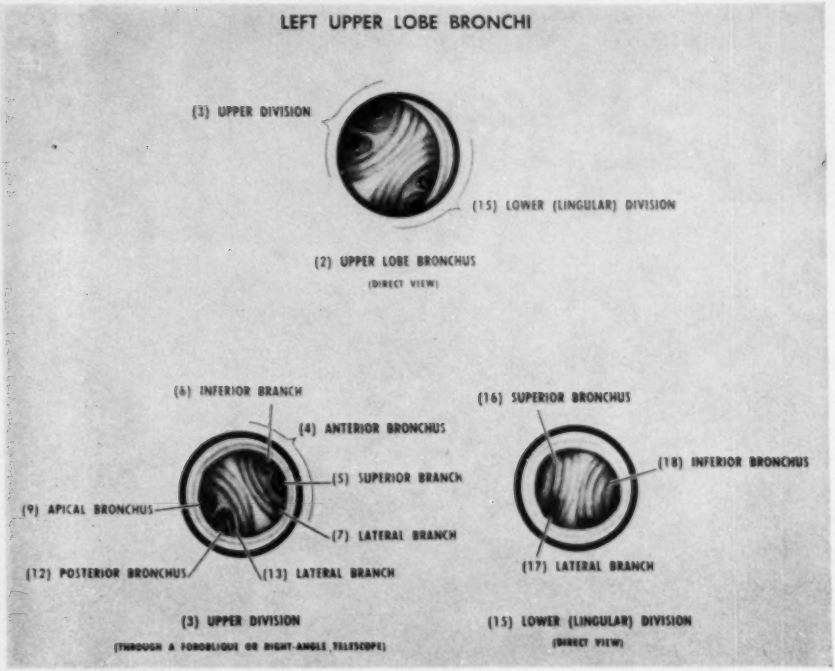

FIGURE 8.

often the quaternary bronchi, either directly or with the aid of a foroblique telescope.

The segmental orifices of the lower lobes can be entered. Not only does this permit more thorough examination of these, either directly or through a suitable optical bronchoscope, but in addition we are able to visualize orifices and parts of intrasegmental, or subsegmental, quaternary bronchi beyond.

The demonstration and visualization of subsegmental, or intrasegmental, bronchi calls for accurate description and nomenclature. This paper is concerned with proposing an extension of the Jackson-Huber nomenclature to include quaternary bronchi, which might also be termed subsegmental, or intrasegmental. Beyond these we are dealing with bronchioles. Bronchoscopic and anatomic studies have been done, together with a review of the pertinent literature. It should be borne in mind that anatomic variations in position become more frequent as one approaches the periphery of the bronchial tree.

Our proposed extension of nomenclature, therefore, has been based upon endoscopic views, using the long axis of the tertiary bronchus as the reference point in naming the quaternary bronchi into which it divides. Hence, anterior and posterior, medial and lateral, superior and inferior refer to principal directions taken from the long axis of the tertiary bronchi.

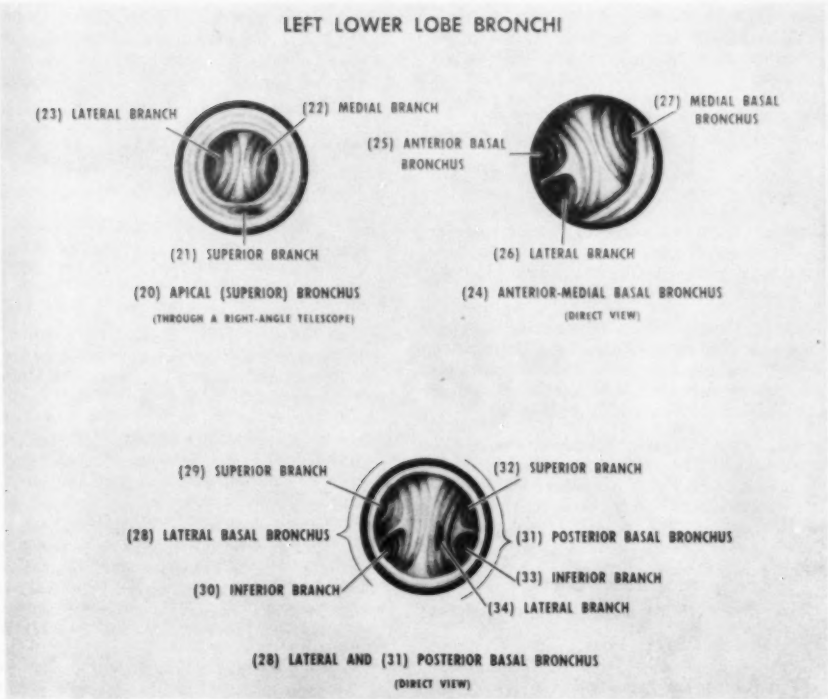

FIGURE 9.

Figures 3 and 4 present our proposed extension of the nomenclature of the bronchopulmonary segments of Jackson and Huber.

The related endoscopic appearances are shown in the form of drawings in figures 5 through 9 (numbers in parentheses correspond to numbers in figures 3 and 4).*

SUMMARY

We feel that any method which permits the discovery of pathologic changes more distally, and therefore earlier in many cases, is of self-evident value. Since it has been possible for us, utilizing general anesthesia with a mechanical thoraco-abdominal respirator, to visualize subsegmental or quaternary bronchi, it therefore becomes necessary to name these bronchi.

*Figures 5 through 9 were done by Elizabeth B. Cozzort, Director of Medical Illustration and Photography, State University of New York, Down State Medical Center, Brooklyn, from sketches made at the time of bronchoscopy.

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DISCUSSION

DR. OWRE: The technique of using a chest respirator to ventilate a sleeping patient made apneic with succinylcholine, which was shown in the motion picture, is the culmination of a two-and-a-half year study at the Long Island College Hospital, during which almost all of the patients undergoing peroral endoscopy received general anesthesia.

Concurrent with our studies, other investigators have been using similar techniques. In some cases they have reported success, and in others they have not been satisfied with their results and have abandoned the technique.

The difficulties experienced have stemmed primarily from the type of equipment available. Until recently, all of the equipment was designed to meet the specific needs of the convalescent polio patient, which are in several important aspects different from the needs of the totally apneic patient. The convalescent polio patient required a respirator which would attach itself to his body, assist his weak respirations, and allow him to move about in the sitting position. Although each manufacturer made many standard-size cuirasses, there was always time to obtain a custom-fitted cuirass if a proper fit could not be obtained with a standard size. The cuirass itself was designed to rest on the bony portions of the torso, which contribute little or nothing to the patient's ventilatory capacity. It covered the patient from the suprasternal notch superiorly, laterally to the midaxillary line, and inferiorly to the pubic crest.

The negative pressure created within the cuirass sucked up the anterior thorax and abdomen, creating a negative intrapulmonic pressure and a compensatory inrush of air. The downward counterpressure was exerted on the upper and lateral thorax, the lateral portion of the abdomen and the bony pelvis. As long as this counterpressure was not excessive and was exerted on these areas, no problems resulted. However, when the increased negative pressure required to achieve maximum exchange in the apneic patient was utilized, the markedly increased counterpressure splinted the lateral chest and abdomen, decreasing the amount of exchange possible. If, in addition, the cuirass was too short, so that it did not rest high enough on the chest or low enough to reach the pelvis, paradoxical movements occurred and little or no exchange took place.

The number of endoscopy patients that could be fitted perfectly with a standard cuirass was limited, probably due to the difference in age groups. Polio patients average twenty to thirty years younger than endoscopy patients. When the fit was excellent, excellent exchange was achieved. When the fit was moderate to poor, marginal results were obtained. In the latter instances, a great deal of hand fitting was required to achieve even the marginal results.

We were successful in effecting adequate exchange in all of the cases in this series and feel that, provided the anesthesiologist and the endoscopist are sufficiently skilled, it represents no hazard to the patient.

We were not satisfied with the equipment available and were able to persuade one manufacturer to produce a respirator to our specifications expressly for this procedure. The results are shown in the final scenes of the motion picture.

This new respirator cage does not touch the torso at any point. The plastic raincoat is easy to seal at the neck, arms, and legs. All negative pressure is exerted on the torso, and the entire counterpressure is absorbed by the table. Currently the cages are sufficiently high so that any downward movement of the cage due to compression of the mattress is not sufficient to limit the upward movement of the chest or abdomen; this feature makes it possible to use these cages on any type of mattress.

This new respirator approaches the efficiency of a standard tank-type respirator operated on negative phase. We have been able to exceed normal tidal volumes in all patients on whom we have used this respirator at negative pressures far less than those we were accustomed to using with the standard polio cuirass. There is never any problem of fit, and once the respirator is in operation the anesthesiologist is completely free to devote his full attention to the patient.

The remaining problems are concerned primarily with maintenance of the patient's airway. No patient, awake or asleep, can breath if his airway is obstructed. The patient must be paralyzed to a point where no laryngospasm is possible during the time that the bronchoscope is in either bronchus, thus allowing for the free exchange of air through and around the bronchoscope. This is especially true during the time that an optical scope is being used through the 6 mm. bronchoscope.

The anesthesiologist monitors pulse, blood pressure, depth of anesthesia, and degree of paralysis, and he operates the respirator. The endoscopist controls the airway, and it is his full responsibility to monitor the tidal volume.

At any time that the endoscopist notes a decrease in tidal volume, optimum airway conditions must be re-established immediately (withdraw bronchoscope to trachea, give additional succinylcholine, etc.).

During our series, there were no deaths and the patients experienced no significant morbidity. Acceptance of endoscopy under this technique by both the patient and the referring physician has been excellent.

J. MAXWELL CHAMBERLAIN, M.D., New York (by invitation): As a thoracic surgeon I have had an opportunity to use the authors' technique in more than fifty cases. I believe the method has great merit.

I agree with them that it allows the bronchoscopist a better, longer and more detailed examination of the bronchial tree without distress to the patient and, furthermore, with the assurance that oxygenation is adequate. Deaths at the time of bronchoscopy are, in my opinion, more often due to oxygen deficiency and its effect upon a damaged coronary circulation than to vagal reflexes. The vagal reflex is usually the "final straw" that slows the pulse in a heart whose myocardium is already suffering from anoxia.

The late diagnosis of carcinoma of the lung is often due to procrastination on the part of the physician who sees the patient first. He dislikes the thought of bronchoscopy upon himself or his patients because of the indelible impression created by an unpleasant experience early in his professional career, when local anesthesia and unskilled techniques were in use. The average physician would rather wait a month and repeat the roentgen examination than subject the patient to the tortures of a bronchoscopy as he remembers it.

It is a pleasure to perform a bronchoscopy without haste upon a patient who does not cough, who is well oxygenated, and who is experiencing no distress. The technique which you have just witnessed has advantages for both patient and physician.

Symposium: Scleral Resection Procedures

INTRODUCTION

DOHRMANN K. PISCHEL, M.D.
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SIX years ago a symposium on retinal detachment was presented to this society. The discussion included etiology, pathology, diagnosis and treatment of simple retinal detachments. The importance of a break in the retinal continuity was stressed as the fundamental factor in the development of retinal detachments. The importance of vitreoretinal adhesions in causing these retinal breaks (holes or tears) was also pointed out, together with the fact that vitreous strands of varying size could keep the retina pulled from its bed. The present panel is even more convinced of the importance of these facts.

The diathermy operation for reattaching the retina was the only method of treatment discussed in the previous symposium. The majority of the present panel feels that the diathermy operation is still the best applicable in most early cases of simple retinal detachment. However, the panel also feels that in a surprising number of early cases, and in almost all cases requiring reoperation, some form of the eyeball shortening operation is advisable. The original operation, devised in 1903 by Müller[3] as an eyeball shortening operation, revised by von Blaskovics[1] in 1912, and popularized by Lindner[2] in 1933, has itself been revised and greatly changed.

The original operation was a full-thickness scleral resection. Today, however, we have a great many variations and many modifications of the original operation. Aside from the popular lamellar or partial-thickness scleral resection, we now have infoldings, outfoldings, buckles and girdles. All these operations have two things in common. First, whatever the technique, they all decrease the size of the scleral shell. And with this goes a decrease in the size of the tissue needed to line the scleral shell. Thus, a smaller or shrunken retina will fit this smaller or shrunken scleral shell. Another important result is that a shrunken vitreous can be made to fill, or more nearly fill, the vitreous cavity.

Second, all these operations produce protuberances on the inner side of the sclera. Some of these are small, some are purposely large. And the protuberances further help to decrease the volume of the globe beyond that caused by the shortening of the scleral shell. If there is a large protuberance, a partly shrunken and adherent vitreous can be made to fill the vitreous cavity more completely, perhaps even entirely. But this procedure may increase the amount of the retina needed to line the eye, thus partly defeating the purpose of the operation.

Most of the panel members believe that three principal factors present in retinal detachments call for eyeball shortening, namely, shrinkage of the retina so that it will no longer fit the scleral shell, formation of definite strands in

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the vitreous, or shrinkage of the vitreous body en masse. The various scleral resection operations currently used differ somewhat with regard to the amount of eyeball shortening obtained, and differ greatly in regard to the size of inward protuberance produced. These variations make some operations more suitable to certain cases than to others.

Dr. Clark will discuss the mechanical factors involved in scleral resection procedures. He will show what is accomplished by the two main types of operation.

The lamellar scleral resection, in various forms, has become deservedly popular. Outfoldings of various types have also been advocated. These will be discussed by Dr. Kronfeld.

The desire to reinforce the natural infolding of the scleral tissue in a simple scleral resection led to the inclusion of some plastic material under the scleral sutures, so that the choroid would be pushed inward to meet the retina. Dr. Schepens will describe several variations of this idea that he has developed recently.

All of these various operations, unfortunately, do have complications during the operation and postoperatively. Dr. Robb McDonald will discuss these.

Our presentation is the result of the pooling of both the current concepts and the experiences of the members of the panel with regard to the treatment of the more complicated types of retinal detachments. Despite this pooling, there is disagreement within the panel with regard to two important points, namely (1) the significance of retinal shrinkage, and (2) the most desirable size, shape, location, permanency, and manner of construction of the inward protuberances created by these operations. Dr. Schepens in his discussion of scleral buckling procedures will present certain indications for the operation with which the other members of the panel are not in complete agreement. Only time will tell whether this more radical treatment has advantages not found in the more conservative approach favored by the other members. I will present the indications and conclusions for the scleral resection operation which are favored by the majority of the panel.

One of the difficulties of retinal detachment surgery is in correctly diagnosing all the features present in a case and then determining what operative steps must be taken to achieve a successful result. While even the freshest and simplest case of retinal detachment may present some inherently bad complications, there are many which fall into a favorable group.

In what cases is the prognosis favorable with a simple diathermy operation? While it is not possible to make absolutely hard and fast rules, the members of the panel feel almost unanimously that the following fall into this group:

1. Cases of a hole in the retina with little if any elevation of the retina surrounding it

2. Cases of obvious detachment involving less than a quadrant of the fundus, with one break, or hole, or several such close together with no evidence of traction

3. Cases of retinal detachment, even if extensive, with a single definitely demonstrable retinal break, or detachments of less extent with several breaks or holes, if their location is limited to about one quadrant and the retina shows appreciable settling on preoperative bed rest

4. Cases of oral disinsertion with the tear less extensive than two positions on a clock, and which show some preoperative settling

5. Cases of a hole in the macula and little retinal detachment.

With proper diathermy operations, at least 75 per cent success should be achieved in such cases.

What are the cases which do *not* look favorable for a simple diathermy operation and in which a form of eyeball shortening is indicated as the primary procedure? I will present an outline and then discuss each case more fully.

I will first mention those with retinal changes.

1. Cases with multiple breaks, or with one very large tear
2. Cases with a shrunken or inflexible retina
   a. With stiff, white, immobile folds
   b. With one or more star folds present
   c. Long-standing detachments with ophthalmoscopic signs of prolonged disease.
3. Cases in which the retina does not settle well with bed rest
4. Cases of degenerative myopia
5. Oral disinsertions more extensive than two positions on a clock.

The vitreous may cause unfavorable complications.

1. Cases showing persistent traction by definite vitreous strands, of variable size, traceable to the retina with the ophthalmoscope or slit lamp
   a. In otherwise uncomplicated detachments
   b. After trauma or intraocular inflammation
   c. In some flat detachments in aphakia
   d. In massive vitreous retraction
2. After known vitreous loss
3. Finally, practically all cases unsuccessfully treated by any other operation

Surgeons should remember that a scleral resection as a primary procedure is much easier and safer to perform than as a secondary operation. Therefore, in doubtful cases it is probably well to decide on the more radical operation.

With the above outline in mind, I will describe these cases more fully. I will first mention those cases with chiefly retinal changes.

First are cases with multiple breaks or holes or with one very large tear. These are definitely hard to cure if the retina surrounding them is cystic or has many degenerated areas.

Next are the cases with a shrunken retina which is too small to fit the inner shell of the eyeball. In these cases there may be stiff, white, immobile folds without demonstrable vitreous adhesions. Many of these folds run radially, some are concentric with the periphery, but they all are fixed and the retina is immobile and whiter than usual. In some cases of retinal detachment there are one or more star folds. These star folds may be very small so that the surgeon must look carefully for them, or they may be so large as to dominate the whole picture. With the slit lamp, the surgeon can often see a very fine tissue on the inner surface of the retina which is pulling the retina together to form the puckered area of the star fold. A further group of detachments with retinal features indicating scleral resection is that in which the detachments are of long standing—six months or longer. The retinas are atrophic, full of small cysts, and show definite shrinkage.

Another group comprises those cases in which the retina does not settle at all with bed rest. If the retina does not set-

tle even after the patient has been in bed for three or four days with binocular bandages, such a patient should have the advantage of a primary scleral resection. This group does not include patients with no improvement after only twelve hours of bed rest and the use of stenopeic glasses.

Further cases for primary scleral resection are those in which, in addition to breaks in the detached retina, the whole periphery of the retina presents a moth-eaten cystic appearance.

Degenerative changes in the myopic eye are another definite indication for scleral shortening combined with diathermy to close all breaks as a primary procedure, as this greatly increases the chance of cure. The thin sclera in these cases makes any scleral operation technically more difficult, and this must be borne in mind.

Cases of oral disinsertion exceeding 60 degrees (two positions on the clock) in extent, especially if marked retinal elevation is present, comprise another group for scleral resection.

Another whole group of cases is that in which the patients show definite pathologic changes in the vitreous. These following cases, especially if fresh ones, will have one or more retinal breaks. First among these are those in which there are definite vitreous strands, of variable size to be sure, and variable direction, that can be traceable in the fundus to attach directly to the retina. For this a slit lamp and either a pre-set lens or a funduscopic contact glass is absolutely necessary. With this apparatus, these strands can definitely be seen and the proper evaluation made. Another type of case is that apparently simple detachment in which there are broad adhesions of the vitreous to the retina rather than just isolated strands. These cases are much more common, however, in detachments after trauma, and especially after intraocular inflammations. Here with the slit lamp one can see that there are broad areas where the posterior face of the vitreous is in contact with the retina and is holding it from its bed. Another well defined group of detachments is seen in aphakic eyes, frequently in the lower half of the fundus. They are not markedly elevated but rise rather smoothly from the disc and the horizontal meridian to become moderately elevated in the periphery. They are immobile and usually are a little whiter than a simple detachment. With the slit lamp one can definitely see that the retina is attached to the retracted vitreous which is helping to hold it from its bed. These cases often have retinal breaks far out in the periphery, which must be sought out. Such detachments usually occur within four to five months after the cataract extraction, but the time interval may be even longer. There are, of course, detachments in aphakic eyes which occur a year, or years, after a cataract extraction. They usually are of the simple bullous type with horseshoe or round tear, and settle well with rest. These can be described as simple detachments occurring in eyes that happen to be aphakic, and yield to diathermy operations as do other simple detachments.

In a subgroup are those cases in which the patient has an aphakic eye in which there has been a known vitreous loss. A final group, coming under the heading of vitreous changes, is that group described by Schepens as massive vitreous retraction. This clinical syndrome, a nightmare to anyone who does detachment operations, presents a picture of a retina pulled forward with many knuckle-like folds, giving a funnel-shaped appearance with the disc seen at the bottom of a long tunnel, if it can be seen at all. With the slit lamp, the vitreous is seen to be adherent to the retina everywhere except in the

small area which leads back to the disc. In these cases, the retina is absolutely fixed and immobile.

Another grouping of cases for shortening should include practically all cases which have previously been treated unsuccessfully by some other type of operation. Such cases, due to the formation of scar tissue, show retinal shrinkage as well as vitreous retraction of varying degrees and should, therefore, be treated with some form of eyeball shortening operation.

Finally, we must include those cases with maculae corneae, or with cataract formation, or with very hazy vitreous in which the details of the peripheral fundus cannot be studied accurately. Here, perhaps, it would be well to risk the more radical operation of scleral resection if the detachment is extensive, involving half or more of the fundus. Less extensive cases probably would do well with a simple diathermy barrage.

I would like to re-emphasize that in all these cases mentioned, a meticulous search for any retinal breaks must, of course, be made preoperatively. And at the time of operation, in addition to some form of eyeball shortening, the breaks must be closed by diathermy, either directly to the holes in the bed of the resection or in the form of a barrage to delimit them from the normal fundus.

Dr. Clark will next discuss the mechanical factors involved in scleral surgery. To point out the various features more clearly he will repeat, for emphasis and in abbreviated form, the classification of the cases in which some form of eyeball shortening is indicated.

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MECHANICAL FACTORS IN SCLERAL SURGERY FOR RETINAL DETACHMENT

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THE need for scleral surgery in treatment of retinal detachments is based on the fact that, although a majority of detachments can be cured by walling off the retinal defect through the application of simple surgical diathermy, there is increasing recognition of a group of detachments in which the adhesive barrier formed by simple diathermy cannot become effective. The adhesive barrier is ineffective because of mechanical situations which prevent the retina from returning to contact with the choroid so that these adhesions can be formed.

The mechanical forces acting in this latter group, which we may term complicated detachments, can be listed under two general group headings:

1. Persistent vitreous traction at the point of the original tear, at points other than the original tear, or over wide areas of retina.

(In all of these the effect of the sealing and adhesive effort by the choroidal exudate is frustrated by the persistent traction which holds the retina away from the sclerochoroidal wall and actually, if too much heat is generated, may cause further detachment, through contracture of the vitreous strands, and carry the retina beyond the reach of scleral surgery.)

2. Loss of free retinal area through agglutinated retinal folds, through contracture of retinal surface membranes, or through retinal shrinkage.

These mechanical situations, you will see, characterize the clinical situations which Dr. Pischel has just enumerated, and in all of them it is plain that the retina would be unable to reach the sclerochoroidal wall even if the holes were closed. The retina cannot be forced back to this wall; it is an inextensible membrane and force will only cause it to split.

In these cases, then, it is necessary to bring the sclera and choroid to the retina. This is accomplished in two general ways:

1. Scleral resection
   a. Fold
   b. Lamellar resection
   c. Penetrating resection
2. Scleral infolding
   a. Imbrication
   b. Scleral resection with retained strip
   c. Scleral buckling with implanted polyethylene tube or fascia lata strip

All of these techniques have, as their primary function, to try to bring the sclerochoroidal wall in contact with an immovable retina. In both types there is evidence that after a few months, if the retinal holes have been effectively sealed, the retina, under the normal intraocular

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pressure, will slowly stretch until all conflicting mechanical forces are resolved. The papers of Everett and Dellaporta have demonstrated this tendency in normal animal eyes.

The effect produced by the scleral resection differs from that produced by the scleral infoldings in that the resection substantially reduces the scleral area as well as the volume of the vitreous chamber. The scleral curvature is flattened to conform to the shrunken retina. In the infolding procedures, the volume of the vitreous chamber is greatly reduced but the area of the inner surface of the sclera which the retina must line is relatively unchanged. The infolds contact the retina and produce a dyke to close or wall off the retinal hole.

We can see, therefore, that although the cause of this disease lies in a biochemical change in the vitreous, its most important features are mechanical by virtue of the contractile strands and membranes formed. Effective treatment depends on the successful neutralization of these forces and counteraction of the physical deformity they produce.

Since this is largely a mechanical disease, let us examine the physical characteristics of the tissues involved in the process:

1. Vitreous is a hydrogel capable of spontaneous liquefaction and equally capable of forming strands or sheets. It resembles collagen, which is highly elastic and, while being remarkably extensible, can also show amazing and rapid powers of contraction. The mechanism whereby these sheets and strands become adherent to the retina is unknown. However, Gonin, and later Wadsworth, have clearly demonstrated the presence of these adhesions and the mechanism whereby the adhesion combined with the contracture produces the tears in the retina which allow the detachment.

2. The retina is a thin, friable membrane which is relatively inextensible and has a low elastic limit. It has no apparent adhesion with its underlying layer and is presumed to be held in position largely by the pressure within the vitreous chamber.

3. The choroid is a thin membrane of blood vessels which is both extensible and contractile, with a resulting high elastic limit although it is weak in its tensile strength.

4. The sclera is a thick, highly elastic but relatively inextensible membrane with, therefore, great tensile strength.

It is evident from this wide divergence of their physical characteristics that these tissues are ill-suited to adapt themselves to any sudden physical change in one of their number, and treatment must, therefore, be so directed as to restore a harmony of their differences as quickly as possible. This harmony must exist because they must all share a common form and dimensions, since they are the continuous layers of a single spherical wall.

The variations in the measurements of eyes are nearly infinite; therefore, for the purposes of discussion, I will assume averages and deal with a median eye.

Since our concern is with the posterior segment of the eye, we will disregard that portion anterior to the diaphragm formed by the lens and zonule. This leaves us with the geometric figure of a spherical segment with an inside diameter of 22 mm. and a height of 17 mm.

This represents the shape and volume of the vitreous, and the surface area (less the plane of its base) equals that of the retina. From this model we can calculate the volume of the vitreous chamber to be 4.9 cc., or one teaspoonful, and the retinal area to be 11.7 sq. cm., or about the area of skin covering the ball of your thumb.

It is with these two dimensions that we are chiefly concerned in the discussion of the mechanical factors of scleral surgery: one (the scleral resection) in which the volume of the vitreous chamber and the area of the inner surface of the scleral wall are both reduced; and the other (the scleral buckle and the other infolding procedures) in which the volume of the vitreous chamber is greatly reduced with little reduction in the area of the inner surface of the scleral wall.

Apparently in cases in which there is loss of retinal area through shrinkage, agglutinated folds and surface membranes, the area-reducing scleral resection is the operation of choice; in cases in which the retina is held away from the scleral wall by some form of vitreous contraction, the volume-reducing infolding procedures are indicated.

Whenever the disease is so extensive as to involve over half the globe, a girdling procedure is unquestionably indicated in order to form an adhesive ridge around the equator to dam off the entire diseased anterior portion of the retina. Remember that all scleral resecting procedures do have a recognizable infolding component and all infolding procedures do have some accompanying reduction in the scleral area; the decision as to which operation to use is one of degree only. There are no clear cut or definite boundaries to any of the types.

Let us now examine the actual amounts of reduction in volume and area obtained by the various procedures, remembering that these figures are calculations from a geometrical figure and are, therefore, only significant as they relate to each other and indicate the differences in the surgical effect. All calculations here assume that the operation was done in the equatorial zone, i.e., the band 12 to 16 mm. behind the limbus and parallel to it.

OPERATION	PERCENTAGE OF REDUCTION PER QUADRANT	
	VOLUME	AREA
Scleral Resection (3 mm. wide)	6.4	4.5
Scleral Buckle (with 3 mm. resection)	8.5	—

From this we see that with the simplest encircling buckle with an implant of 1.25 mm. plastic tube buried beneath the sclera, the volume of the vitreous chamber is reduced by 1.3 cc., or 34 per cent. This may be increased to almost any amount by drawing up the encircling tube.

At this point it is well to mention, with reference to the scleral resection, that the eversion of the scleral wound edges by tight suturing may as much as double the effect, particularly in a soft eye, and may actually convert a simple resection into a minor scleral buckle.

Thus we have a rough estimate of the amount of reduction obtained by the various scleral shortening procedures, but it does not tell us how much we needed at the start of the operation. There is no accurate way to determine this. In cases in which the retina will not settle after bed rest, but in which there is no severe loss of free retina, a 3 mm. scleral resection two quadrants long produces excessive reduction in area. In fact, when the detachment is reduced, there is usually considerable residual loose retina in the resected area. Calculations using the geometrical model show that with a smooth, low bullous detachment of half the retina which has an elevation of 2 mm., or 6 diopters, a reduction of 2 per cent in scleral area is sufficient to make the two coats again compatible. So a 1.0 to 1.5 mm. resection over half the globe should be sufficient in cases without sharp, fixed traction

ridges or severe retinal atrophy. Again, a word of caution against the distortion produced by too tight suturing when the globe is soft.

The limits of scleral shortening will be shown by a hypothetical, extreme case in which the retina has shrunk to form a cone within the sphere of the eye. Section of this eye would show the retinal line as a chord of the arc of the sclera. The length of a chord is 82 per cent of the length of its arc. In the eye it represents a linear loss of 4 mm. of retina. Therefore, a 4 mm. scleral resection completely encircling the globe at the equator would reduce the posterior segment of the globe to a flat-walled cone with a 60 per cent reduction of its volume and 20 per cent reduction of its surface area. This, as I have said, is the extreme case and one that would never be met in actual surgical operation, but it serves to show that a 4 mm. wide resection is the maximum that should ever be used.

The 360 degree scleral buckle employed to meet this same hypothetical situation would require that the plastic tube (which will encircle the intact globe at the equator with 75.5 mm. length) be reduced to a girdling ring 37.0 mm. long (about half its original length). Again this does not represent a real situation and simply gives the extreme to which the procedure can practically be carried. In actual practice, shortening the 75.5 mm. girdling tube by 14.5 mm. would carry the buckled ring of sclera in to meet the shrunken cone of retina and further constriction would be only that which would reduce the volume sufficiently to force the retina back against the wall of the eye.

Let me again stress that these procedures cannot be accurately calculated and the figures given are simply to illustrate the means and extremes as a guide to planning surgical operation and evaluating its effect.

The necessary volume reduction is best told when, with closure of the scleral wound after the release of all subretinal fluid, the intraocular tension returns to normal. A paracentesis may be necessary in order to complete the operation, but it should be recognized that this may indicate that the amount of volume reduction has been in excess of that which was needed. The surgeon should try to keep the operation within the requirements of the situation. Proper treatment should always seek to restore the normal state as quickly as possible and not impose abnormalities or distortions by excessive measures.

This section of the discussion has dealt with the mechanical factors involved in scleral surgery for the treatment of complicated retinal detachments. The purpose has been not to lay down rules nor champion one type of procedure over another, but to show the necessity of choosing the type of surgery best-suited for the situation at hand and to offer some guideposts by which we can better direct our efforts.

Symposium: Scleral Resection Procedures

THE SCLERAL RESECTION OPERATION: CURRENT TECHNIQUES

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THE operations aiming at the cure of retinal detachments by altering size and shape of the sclera have undoubtedly reached a high plane of development, but they have also reached a point of apparent diversity of technique. Situations of this kind are common in medicine and are usually handled by classification of the existing items. Such classifications often bring out the evolution of concepts and techniques and thereby restore a certain order in what at first seemed like chaos.

Classifying the current scleroplastic methods of treating retinal detachment on the basis of the gross change in scleral shape or size resulting from the operation the following types may be distinguished: (1) resections in the strict sense of the word, (2) infoldings, (3) outfoldings, and (4) imbrications of sclera.

Types 1 and 2 are more closely related to each other than any of the other types. Scleral resections, whether they are partial or penetrating, almost invariably entail some infolding because mere apposition of the wound edges is very difficult to achieve and maintain in scleral incisions more than a few millimeters long. Interrupted sutures, single or mattress type, or running sutures tend to crowd the outer scleral layers outward and the inner scleral layers inward so that a certain amount of inward humping or infolding occurs in practically all types of scleral resections. The relationship between the two types of operation is also a close one in the sense that many intentional infolding operations are routinely combined with lamellar scleral resections.

A review of the current literature reveals that combined resection-infolding operations, with or without the implantation of plastic materials, are more widely used than outfoldings and imbrications. It is the feeling of this panel that resection-infolding operations, in varying proportions of the two components, are applicable to most of the clinical situations in which operations of the general order under discussion here have proved successful. The combined resection-infolding operation may, therefore, be considered, at this time at least, the standard scleral shortening operation. It will, therefore, be discussed first.

THE TECHNIQUE OF THE RESECTION-INFOLDING OPERATION

The general technique of the operation has been described by Lister, Philps and Shapland,[9] Paufique and Hugonnier,[10,11] Berliner,[2] Stallard[13] and Barraquer.[1] One of the characteristics of the resection-infolding operation is that it requires careful adaptation to the individual case. Some of these adaptations are made before the operation at the bedside, or in the darkroom, and are

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incorporated in the operative plan. These adaptations are made on the basis of the same exhaustive fundus study that is a prerequisite for a successful diathermy operation. On the operating table, particularly for eyes previously surgically treated, the operative plan may have to be altered to suit the condition of the sclera. During and particularly toward the end of the operation it may be necessary to make more adaptations depending upon the response of the retina to the operation.

All adaptations are chiefly of a quantitative nature. They are concerned with depth, width, length and position of the resection on the globe, specifically in relation to the retinal breaks.

The Depth of the Resection

In deciding upon depth and width of the incision the surgeon should remember that shortage of the retina calls for shortening the globe with a minimum of infolding, and that rigid retinal knuckles and folds call for reduction of the space to be occupied by vitreous, in other words, a maximum of infolding. The relative amounts of scleral shortening and infolding are largely under the control of the surgeon. Removal of the sclera down to the very thinnest perceptible layer — definitely beyond the point where the slate-grey color of the uvea first becomes visible—and shallow suture bites are conducive to scleral shortening with a minimum of infolding. Shallow resections closed with deeply placed sutures produce large internal humps. The deliberate building up of such inward protuberances has become one of the characteristic features of present-day detachment surgery. Holding the width of the resection constant for the moment, the size of the "roll" (the favorite ophthalmoscopic term for the inward protuberance) varies (1) inversely with the thickness of sclera that is removed, (2) directly with the depth of the suture bites, (3) inversely with the intraocular pressure at the time the sutures are tied, (4) inversely with the textural firmness of the sclera, and (5) inversely with time.

In brief, shallow resections combined with deep sutures add up to massive protuberances and vice versa. The size of the protuberance which dominates the ophthalmoscopic picture should not make one forget that the operation has also produced a very definite amount of scleral shortening or globe flattening.

Width and Length of the Scleral Operation

Greater width and length generally augment both the scleral shortening and globe volume reducing effect of the operation. The decision as to width and length of the resection is, therefore, made in accordance with the specific needs of the case at hand. If retinal shortage is to be relieved, the scleral shortening must be done in the areas that show the signs of retinal shortage. These are, most commonly, either the upper temporal quadrant after diathermy treatment for multiple breaks or the lower half in the inferior detachments of long standing. In cases of extreme retinal shortage, the first resection may improve but not completely correct the faulty position of the retina. A very shallow, smooth-surfaced detachment may persist and indicate a state of undercorrection, which is usually relieved by a second scleral resection. Overcorrection, that is, postoperative redundance of the retina, may result from very long resections without plastic implants. A good many of these redundances are smoothed out in a few weeks, without interfering with the process of reattachment in other parts of the fundus. Occasionally, however, particularly in the upper half of the retina, failure of the operation seems to be characteristically associated with marked persistent redundances of the

retina over the sclerochoroidal roll. This redundance may be the cause of failure by interfering with the closure of retinal tears located in or anterior to the region of the roll. Thus, there is the possibility of untoward effects of too large a resection. This possibility will be discussed further under the heading of complications.

Returning to the question of the length of the resection, there is no possibility of overcorrection in cases of total or almost total detachment with massive vitreous retraction. There a maximum of globe volume reduction, with a maximum of molding effect upon the vitreous, is necessary to bring about a change in the position of the retina. The outcome of these cases has been decidedly improved by the enforcement of the roll with a circling plastic tube, as conceived and developed by Schepens.

The Position of the Resection

Scleral resections may, in principle, be made in two different locations, viz., anterior or posterior to the retinal breaks. One condition has to be met wherever the resection is performed. The portion to be excised must be located so that the defect can be closed with sutures placed in fairly sound scleral tissue. In other words, accessibility to a satisfactory wound closure should be a guiding principle in choosing the site for the resection. Most surgeons active in this field have found that their ability to deal with far posterior resections has improved over the years and that they are now able to handle situations which they would have considered impossible ten years ago. Some of the surgical instruments had to be adapted to the work at the far posterior sites.[7,8]

If the aim of the operation is to relieve retinal shortage, a typical, almost full-thickness resection parallel to the limbus and anterior to the equator will usually take care of the situation. If a second or third operation should become necessary, the location of the resection will depend upon the scleral area available and upon the extent of the residual detachment. If the detachment still extends to the ora, the second resection can sometimes be made in front of the first one. More often, however, the surgeon will have to move to a more posterior, less easily accessible site.

If the operation aims at the creation of marked inward protuberance in order to meet the way-off retina, posterior sites are usually chosen. There the location of the retinal breaks becomes a very important point. Closure of these breaks requires good contact between their edges and the diathermized choroid. The crest of the scleral resection roll (without a tube) is not well suited for the establishment and maintenance of this contact, particularly if a marked retinal redundance has been created by the resection. Thus, the scleral resection roll may actually interfere with closure of the breaks. Contact between coagulated choroid and torn retina is established and maintained much more easily some distance away from the roll. That means that the roll should be placed well in front of or well behind retinal breaks.

A special situation prevails in cases of giant breaks with stubbornly elevated posterior ("disc-side") edges. A scleral resection roll placed posterior to this edge has a good chance of contributing materially to the closure of the tear by bringing the choroid up to the elevated retinal edge. In cases in which the difficulties entailed in such placing are insuperable, the surgeon may try to move the retinal edge outward, toward the choroid, by strong molding forces applied to the vitreous in all directions, that is, in all quadrants, by means of a long, if not completely circling, chiefly infolding resection.

Diathermy Application in Connection with Resections

Aside from diathermy treatment directed at retinal breaks, the general practice is to apply mild diathermy (or mild chemical irritants) to the choroid through the layer of sclera remaining in the trough. Coagulating diathermy with the indifferent electrode disconnected (unipolar) is well suited for this particular purpose. Such diathermy offers a good chance of extensive permanent chorioretinal adhesions, which are likely to be an asset in any eye with retinal detachment. The objection might be raised that such extensive diathermy might actually be harmful by destroying unnecessarily large areas of functioning choroid and retina. Although such an objection would undoubtedly be valid in classical diathermy operations, it probably does not apply to resections, where the diathermy is applied in small controlled amounts to the surplus of choroid, created by scleral resection.

These coagulations within the resection area also help wall off retinal breaks located more anteriorly. *To complete this walling off, semipenetrating coagulations in double rows should be made connecting the tips of the scleral resection area with the ora.*

Retinal breaks located posterior to the scleral resection have to be treated as in the classical diathermy operation, but taking into consideration the change in position which these breaks undergo during the resection operation.

Drainage of the Subretinal Fluid

In the so-called simple tear-closing operations, release of subretinal fluid is the very important step that allows the torn retina to establish contact with the cauterized choroid. In scleral resection operations the release of intraocular fluid is a *sine qua non* for the accomplishment of the desired amount of either shortening or inward protuberance. There has to be a fairly definite quantitative relationship between the amount of fluid released and the over-all change in globe surface and volume. If that relationship is not carefully observed, the intraocular pressure may rise to a dangerously high or may drop to an undesirably low level during, at the end of, or shortly after the operation.

Too high a pressure is the more serious development and has to be watched for by indenting the cornea every so often with the point of a strabismus hook and by careful observation of the circulation in the retinal vessels. Particularly in young people with texturally strong scleras, a fairly extensive resection closed with 4-0 silk sutures may raise the intraocular pressure to the point of visible pulsation of the retinal arterioles, and even to the point of retinal ischemia.

In the converse situation, that is, drainage of fluid from the eye in excess of the desired over-all change in globe volume, the tying of the sutures tends to produce very massive and at the same time very loose, unstable inward protuberances with marked retinal redundance in meridional and equatorial direction. This ophthalmoscopic picture, in my experience, has been a bad omen and should be avoided or corrected by making up for the loss of fluid either by giving the inward protuberance more substance and solidity through the inclusion of a plastic tube or by the intravitreal injection of air, saline solution, or stored vitreous. Disturbing discrepancies between fluid to be released and over-all surface or volume change of the globe are rarely encountered in cases of marked retinal shortage or of massive vitreous retraction, but they may occur in stubbornly bullous detachments of the upper half of the retina.

Ideally, the change in globe surface

and volume and the release of subretinal fluid during the operation should proceed at the same rate; after the resection has been completed and the sutures have been placed, drainage openings should be prepared at regular intervals within the bed of the resection and drainage started through one or two openings at a time, at a rate commensurate with the change in bulbar shape as brought about by the pulling-up and tying of the sutures. The progress of drainage and building-up of the roll should be checked by frequent ophthalmoscopic examinations. If these reveal residual subretinal fluid posterior to the roll after closure of the resection, additional drainage openings should be made considerably posterior to the resection so as to strike flat, unpuckered choroid. The usual precautions against injuring the retina must be rigidly observed.

A TYPICAL SCLERAL RESECTION OPERATION

At this point it might be helpful to describe, step by step, a typical lamellar scleral resection in a case, let us say, of retinal detachment of about three months' standing, involving more than three quadrants, with three breaks in the upper half, nonsettling after three days of immobilization including binocular bandage. Because of the presence of a number of rigid folds and knuckles in the lower half, the surgeon has decided to perform a lamellar scleral resection over three quadrants of the globe, posterior, if possible, to the retinal breaks and with considerable infolding so as to bring the choroid to the retina and to reduce markedly the volume of the vitreous chamber. These will be the important steps:

1. *Exposure* which includes (a) incision of conjunctiva and Tenon's capsule, (b) detachment of the inferior, lateral and superior rectus and (c) light cauterization of the scleral vessels crossing the area of operation.

2. *Localization of the breaks* by ophthalmoscopy. Their projections upon the outer surface of the sclera are marked with gentian violet or light diathermy.

3. The *resection* is started by marking out the resection area with gentian violet or the diathermy needle. The marking out is started in the area of the break, placing the anterior border of the contemplated resection posterior to the marks corresponding to the retinal breaks, if that is technically feasible. The long axis as well as the borders of the resection should be approximately parallel to the limbus, or rather to the ora, which may be assumed to be represented by the most anterior portions of the insertions of the recti. If the chosen distance between ora and resection is marked out in a number of meridians, incisions parallel to the ora are not difficult to make. They should be definitely at right angles to the scleral surface and at first quite shallow so that the surgeon can acquaint himself with the texture and thickness of the sclera and the sharpness of his knife. Gradually the incisions are extended lengthwise and depthwise. Since in the case under consideration an invagination of considerable substance is desired, the incision should not be carried beyond the depth at which a bluish hue first appears.

The actual technique of resection, that is, the direction in which the knife is carried through the layers of the sclera, should be adapted to the natural planes of cleavage within the sclera, maintaining as uniform a depth of the excision as possible.

4. The *sutures* can be placed before or after the actual resection. 4-0 braided silk is generally used on special needles manufactured for scleral resections. Mattress sutures are preferable to single

interrupted or running sutures. In the case under discussion the individual bites should be placed about 2 mm. apart and well anchored within the sclera. This is accomplished by inserting the needles close to the very bottom of the resection and carrying them through at least 1.5 mm. of sclera before they emerge.

5. *Diathermy cauterization* of the bottom layer, as described previously.

6. *Drainage openings* within the resected area. The case under discussion would probably require at least four good, evenly distributed drainage openings. To make these openings can be a very simple or a very difficult matter, depending upon anatomic conditions which are not directly apparent to the surgeon. He must remember that he is to some extent working in the dark and should, therefore, proceed cautiously and patiently. Some surgeons routinely try to obtain drainage by puncturing the remaining layer of sclera and the choroid with short needle-shaped electrodes, using coagulating or cutting current. This technique undoubtedly works in a good many situations. Surgeons who prefer to see what they are doing expose the choroid through short meridional scratch incisions of the bottom scleral layer. The exposed choroid is then punctured with a fine short needle, carefully avoiding any visible large vessels. A small bulge or knuckle of choroid punctured close to and almost tangentially to the surrounding sclera is usually a safe and effective drainage site. Diathermy is of no additional value in this situation.

7. *Closure of the scleral resection.* The question which portion of the resection should be closed first arises. In the case under discussion I would first tackle the quadrant containing the breaks, the upper temporal quadrant. The choroid is punctured carefully in one or two of the previously prepared sites and fluid is released. Only three or four sutures are pulled up and tied with single knots so as to give the surgeon the opportunity of checking the position of the breaks with regard to the roll. If the ophthalmoscopic examination reveals that the posterior border of one or several tears lies on the crest or posterior slope of the roll, the surgeon can still correct his error in localization by extending or broadening his resection backward toward the posterior pole.

If the position of the breaks is correct with regard to the crest of the roll, the sutures are double-tied and the procedure of closure of the resection continued, pulling up sutures and releasing fluid *pari passu,* and checking the position of the retina frequently. Redundance of the retina, if it should develop over parts of the roll, can be corrected by enclosing a short length of polyethylene tubing in the resection.

8. *Treatment of breaks.* Breaks located posterior to the resection roll are now given diathermy treatment as in the classical diathermy operation. Breaks located anterior to the roll may require some additional diathermy in a meridional direction.

9. *Finishing touches.* These include the careful drainage of residual fluid pockets posterior to the resection; the intravitreal injection of air, saline solution or stored vitreous if the ocular tension is too low to effect complete evacuation of the subretinal fluid through properly placed drainage openings; the smoothing-out of the sclera at the ends of the resection and their connection with the ora by surface or semipenetrating diathermy and, finally, the reattachment of the recti and closure of the conjunctival wound.

There can be no question about what the surgeon hopes and expects to see in the eyeground at the end of his scleral resections. The ideal picture is that of reattachment of the retina up to a smooth

choroidal roll, with the retina well tucked under the posterior slope of the roll and following it fairly closely with not too much redundance, and with good contact between retina and choroid in areas of retinal breaks.

OTHER TECHNIQUES

In addition to the typical lamellar resection with or without plastic implant, there are currently in use a number of related techniques.

The outfolding procedure as conceived and worked out by Castroviejo[4] and Everett[6] has the two decided advantages of ease, if not elegance, of performance even in very soft eyes, and of the possibility of stopping the outfolding operation whenever the desired amount of scleral shortening is obtained. By adhering strictly to the technique as described by Everett, injury to the choroid is avoided except in areas severely altered by previous inflammation or operative trauma. The scleral shortening obtained by outfolding is apparently as lasting as in other scleroplastic operations.

Swan's imbrication method[14] aims principally at exact, secure wound closure. The initial incision is made along the equator down to a depth of about three quarters of the scleral thickness. At this level interlamellar dissection is started in both directions, that is forward and backward, and continued until scleral flaps of desired size have been formed. By suitably placed sutures the anterior flap is imbricated under the posterior flap. This results in scleral shortening and moderate inward humping.

Interestingly enough, von Blaskovics[3] in 1911 devised and practiced a modification of Mueller's original scleral resection, which is very similar to Swan's imbrication method.

Scleral shortening can be accomplished by a coagulating high frequency current without resecting any part of the scleral envelope. The principal advocate of this method is Scheie.[12] After sealing the retinal breaks in the usual manner and releasing the subretinal fluid, he brushes the sclera with a surface electrode over the area of the detachment in a band from 8 mm. to about 17 mm. back to the limbus. The electrode is applied lightly, without actually burning the sclera. This causes marked shrinkage of the sclera and is often accompanied by a rise in pressure well above the normal level, which Scheie considers an important and desirable feature of his operation.

A strong trend is to give more bulk and solidity to the inward protuberance. That is the aim of the various infolding operations in current use. The tendency is to combine the infolding with the creation of raw surfaces in order to promote an active healing process. That is the principle underlying the "lamellar undermining" of Chamlin and Rubner[5] which, at the time of this writing, is the operation of choice for many surgeons who are actively engaged in the surgical correction of retinal detachment.

Greater solidity and durability of the inward protuberance can be obtained by the implantation of other tissues or foreign substances into the scleral resection bed. Dr. Schepens will deal specifically with plastic implants.

As far as the reviewer can see, these variations of the standard infolding resection operation are all based on the same mechanical and therapeutic principles and differ from each other only quantitatively and with regard to technical details.

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Symposium: Scleral Resection Procedures

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SCLERAL BUCKLING PROCEDURES

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BY INVITATION

THIS section, which embodies the thinking of the staff of the Retina Service in Boston, is a minority report relative to certain general concepts and methods of treatment. For instance, previous speakers have indicated that there are two conditions which should be clinically recognized because they often prevent a carefully performed retinopexy (or simple diathermy operation) from being successful. The first condition is retinal shrinkage; the second is the presence of fixed retinal folds. My understanding of the opinion of these speakers is that if all other factors are equal, and if retinal shrinkage is a major feature, a simple scleral resection is indicated; on the other hand, if fixed retinal folds caused by vitreous traction are a prominent factor, an infolding type of operation is favored. The Boston team is unable clinically to differentiate retinal shrinkage from fixed retinal folds due to vitreous traction. Their clinical experience indicates that such differential diagnosis is unimportant for the surgical management. The most frequent signs which, in their opinion, make the prognosis poor are all manifestations of traction exerted on the retina by structures located in the vitreous cavity.[6,7] These signs are (1) fixed retinal folds, including star-shaped folds; (2) retinal tears with a rolled convex edge; (3) retinal breaks which are either multiple or of giant size (one quadrant or more); and (4) vitreoretinal strands or membranes which can be detected in the posterior vitreous cavity by slit lamp examination.

Since the basic factor causing retinal detachment is traction on the retina in the direction of the vitreous cavity, it is natural to think that if the treated choroid were pushed toward the detached retina at the time of the operation, a greater percentage of success could be obtained. This idea is not new. It incited Strampelli[10,11] to inject blood plasma under the choroid (1933); he later used gelatin sponge instead of blood plasma (1954). Jess[5] temporarily sutured a gauze pad over the treated area of the sclera and Custodis[1,2,3] sutured a piece of plastic material to the treated zone of the sclera without resection. In the experience of the Boston group, the most efficient method for combating traction on the retina is to use some form of scleral buckling.[8,9]

As a scleral buckling is essentially a modified retinopexy in which the area treated with diathermy is pushed towards the vitreous cavity, the buckle must be placed either over the retinal breaks or, in the case of a barrage, posterior to the retinal breaks. Consequently, detection and accurate localization of all the retinal breaks is an essential step in this type of procedure. In general, the buckled area of the sclera is the only zone treated with diathermy; a lamellar

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scleral resection is often performed in conjunction with the scleral buckling because it permits the use of very light diathermy upon the thinned sclera, producing a more uniform choroidal reaction and more permanent buckle. Embedding a foreign body in the sclera creates a higher and more durable buckle.

As the above outline indicates, a scleral buckling differs from a classical scleral resection in several respects. First, the location of the resection is different: the location of the scleral buckling is determined by the position of the retinal break; whereas a classical scleral resection generally is located in an area which is conveniently reached, slightly posterior to the rectus muscles. Second, in a scleral buckling procedure, resection and diathermy are in the area directly related to the position of the retinal breaks. In a classical resection, the diathermy is applied over the retinal breaks, but because the resection is often anterior, it is less effective than a scleral buckling in pushing the treated area of the choroid toward the detached retina. Finally, in a classical scleral resection, no foreign body is used to make the ridge higher and more permanent.

After more than eight years of experimentation and clinical observation, methods of scleral buckling have been developed and a large number of such operations have so far been performed. At the Retina Service in Boston, they were found to be a great improvement over any other technique previously tried. It would be a dangerous error, however, to believe that in their present stage of development the scleral buckling procedures cause no complications or cannot be further improved. Like any other surgical technique, they will either be perfected or superseded by more efficient procedures. The present description should, therefore, not be considered as final, but only as the 1957 aspect of techniques which are still being modified. Such modifications will be published from time to time.

SURGICAL TECHNIQUES AND THEIR INDICATIONS

A scleral buckling operation is ordinarily performed under general anesthesia, using intravenous thiopental sodium and inhalation of nitrous oxide through an endotracheal tube. A canthotomy is performed, and lid sutures are passed in the tarsal plates for better exposure. The conjunctival incision is made as extensive as needed for exposure, a complete peritomy being sometimes required. Extraocular muscles are detached whenever necessary; in many cases three, sometimes four, recti are detached. The following special instruments are used for scleral bucklings:

Indirect stereoscopic ophthalmoscope* and scleral depressor are indispensable for adequate preoperative workup; the same ophthalmoscope is used for fundus observation during the operation and for postoperative follow-up.

Desmarres scarifier,† blade 4 mm. long and 2 mm. wide, is used for excision of the scleral lamella (fig. 1, A).

Sharp cutting spatula,† 1.5 mm. wide, is used for incising the sclera very posteriorly when it is impossbile to do so with the Desmarres scarifier (fig. 1, B).

Arruga retractor is used for exposing the sclera at the time of localization of the retinal breaks under ophthalmoscopic control.

Forked retractor replaces the Arruga retractor for the other steps of the operation; the notch in the middle permits easier rotation of the suture needle when the mattress sutures are located posteriorly (fig. 1, C).

*Made by American Optical Co., Southbridge, Mass.
†Made by Grieshaber, Schaffhausen, Switzerland.

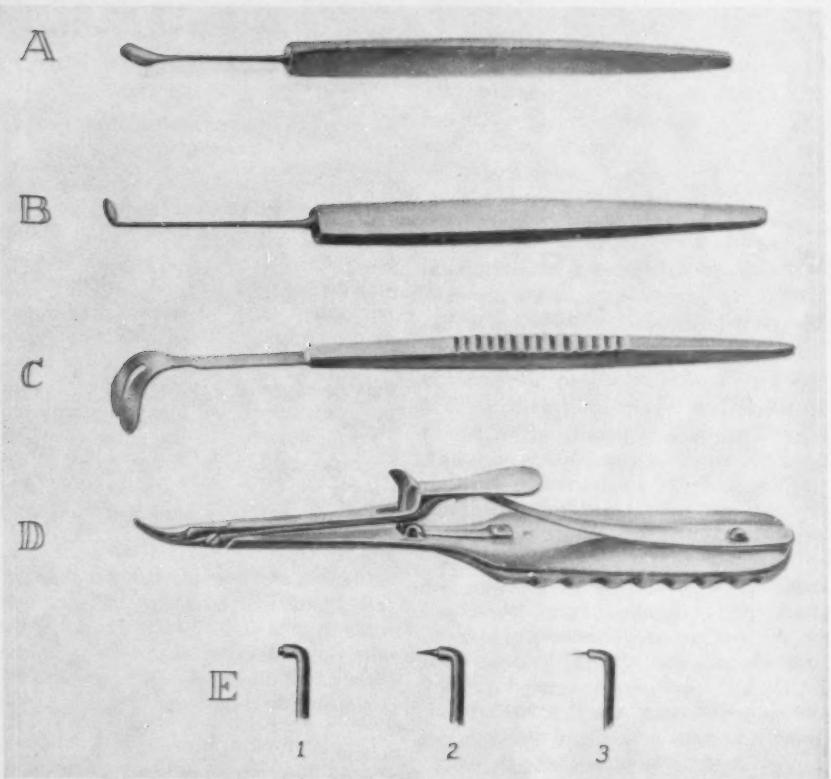

FIG. 1—Some of the special instruments used for scleral buckling surgery. (A) Desmarres scarifier (no. 33/4); (B) sharp cutting spatula (no. 125); (C) forked retractor; (D) special curved needle holder; (E) three electrodes: (1) flat tip for localizing retinal breaks under ophthalmoscopic control, (2) blunt point for applying surface diathermy, and (3) fine needle for perforating the choroid.

Three short lengths of polyethylene tube (PE-90, PE-190, and PE-205)‡ are used for short buckles.

Polyethylene tube (PE-90), 150 mm. long with 2-0 braided black silk suture in its lumen, is used as circling tube.

Braided black silk sutures (4-0) mounted on needles 82/7 and 82/5† are used for the mattress sutures.

Special needle holders (one straight and one curved) with narrow jaws† are very useful for handling the small needles, particularly when exposure is poor (fig. 1, D).

Amsler marker is used to measure distance from the limbus.

Electrodes for diathermy applications are used as follows: flat tip 1 mm. diameter for localizing retinal breaks; blunt needle 2 mm. long for applying surface diathermy; fine needle 2 mm. long for perforating the choroid (fig. 1, E).

In buckling procedures, the diathermy applications are practically always made

‡Supplied by Clay-Adams, Inc., New York.

in the base of the resected scleral area; it has been found advantageous and less traumatic to make light applications with a small applicator, such as a 2 mm. long blunt diathermy point, which is used as a surface electrode. This blunt point is applied, as a stylus, gently and tangentially to the thin sclera without perforating it.

Four standard methods of scleral buckling will be described: (1) scleral buckling with circling polyethylene tube; (2) scleral buckling with incomplete polyethylene tube; (3) scleral buckling without scleral excision; and (4) scleral buckling with a trap-door scleral flap.

SCLERAL BUCKLING WITH CIRCLING POLYETHYLENE TUBE

Indications

This operation, which was at first used only in cases in which the prognosis was unfavorable, is now used in a majority of instances where enough fluid can be released to close the buckle and tie the circling tube. It is especially useful in detachments with large breaks, multiple breaks, or fixed folds; aphakic eyes and those which have unusually thin sclera, so that the use of many scleral sutures is dangerous, do well with this procedure. The Boston group feels that this is the only operation to which cases of massive vitreous retraction have responded. The reason for such success is that this is the only procedure known to me by which a permanent and extensive buckle, reaching a height of 6 mm. or higher, can be safely obtained. This method was progressively used on more favorable cases, and it was found that the results were more dependable, so that at present, if sufficient subretinal fluid is released, the circling tube is used routinely.

Technique

After the sclera is exposed, the lid speculum is removed to allow insertion of the Arruga retractor. The surgeon examines the fundus with an indirect ophthalmoscope while the assistant applies pressure on the sclera with the flat electrode, being careful to avoid traumatizing a vortex vein. The rounded elevation produced by the electrode on the choroid is usually easy to see, and when it coincides with the posterior edge of a break, the surgeon directs the diathermy current to be turned on. This generally produces a white diathermy mark in the retina at the posterior edge of the break; of course, if the retina is markedly elevated, no mark will show in the fundus, but there is always a mark on the sclera. All significant retinal breaks are localized in this fashion. The distance between the scleral marks and the limbus is measured so that the location of the buckle may be determined.

When considering the distance of the buckle from the limbus, only the posteriorly located retinal breaks are important. For example, if there are four breaks in the temporal half of the retina, the posterior edges of which are located 10, 12, 13 and 14 mm. from the limbus, the resection is done temporally, 13 mm. to 16 mm. from the limbus, 3 mm. being the usual width of the resection (fig. 2, A and B). If the point of emergence of a vortex vein is in the area of resection, the surgeon must take great care not to damage the vein; techniques used in this respect are described elsewhere.[9] If all the breaks are in the vicinity of the ora serrata, there are at least three reasons why it is generally preferable to place the resection at the equator rather than more anteriorly. First, an equatorial fixed fold often forms, even postoperatively, and an equatorial buckle is the best means to combat the ill effects of this type of fixed fold; second, the thinness of the sclera close to the attachment of the recti muscles often makes an anteriorly located buckle technically

difficult; and third, a buckle which is too anterior has a tendency to slip forward, thereby diminishing the buckling effect.

The scleral incisions are made with a Desmarres scarifier by scratching down on the sclera and spreading the cut edges until a bluish color is seen. When the sclera between the two incisions is resected, it is important that the remaining layer of sclera, which is one quarter to one half of its thickness, be as uniform as possible. Between 180 and 270 degrees of the globe circumference is usually resected.

As each quadrant is resected, light diathermy is applied to the remaining uniform thickness of sclera with a blunt needle electrode (fig. 2, C). One or two 4-0 black silk mattress sutures are then placed across the resected portion. A single knot is tied so that the suture may be pulled up quickly and locked if necessary. These sutures need not be placed closer than 8 mm. to 10 mm. from each other except when the sclera is thin, and in this case it is useful to use more sutures. By completing the above steps upon one quadrant at a time, the entire length of the buckle is resected, treated with diathermy and sutured. The ends of the resection are not tapered (fig. 2, D); in this way the procedure differs from the classical scleral resection.

The mattress sutures are loosened and a circling tube, which was described earlier, is passed under the mattress sutures and under any muscles not detached. To perforate the choroid, a short scratch incision is made in a meridional direction in the resected area, usually where there is the most subretinal fluid, but not over the location of a retinal break (fig. 2, E). The incision should be carried down to the choroid, at which point a small knuckle of choroid will be seen between the lips of the incision. If, after careful inspection, no large choroidal vessels can be seen in the knuckle of the choroid, it is perforated with the needle electrode held tangentially to the globe. The surgeon must be extremely careful not to perforate large choroidal vessels, particularly in the region of the vortex ampullae and of the long posterior ciliary arteries. A tiny perforation is all that is necessary, as a sudden release of fluid through a large perforation may lead to intraocular hemorrhage, incarceration of the retina into the perforation, and vitreous loss. As the globe becomes soft with the release of subretinal fluid, the mattress sutures are gradually pulled up and locked with a single knot.

The fundus is now examined to determine the position of the retinal breaks in relation to the buckle. The breaks, of course, should lie on the anterior slope of the buckle. If a break is either partly or completely located on the posterior slope, this should be corrected by methods described elsewhere.[9]

When the ophthalmoscopic examination shows that subretinal fluid is still present, especially over the buckle, the single knots are loosened and additional fluid is released either through the original perforation or through a second perforation made in the area where most of the fluid is still present. After this, the sutures are again pulled up and the fundus re-examined; this process is repeated as often as necessary. Ideally, the retina should be in contact with the buckle everywhere, and this is actually what happens in most cases. The mattress sutures may now be tied permanently (fig. 2, F), checking on the intraocular pressure from time to time with a muscle hook, and maintaining the pressure within reasonable limits by methods described elsewhere.[8]

Before tying the suture which is located near each end of the resection, the surgeon should decide whether or not to wall off the retina located anterior to the resection. The walling off is done

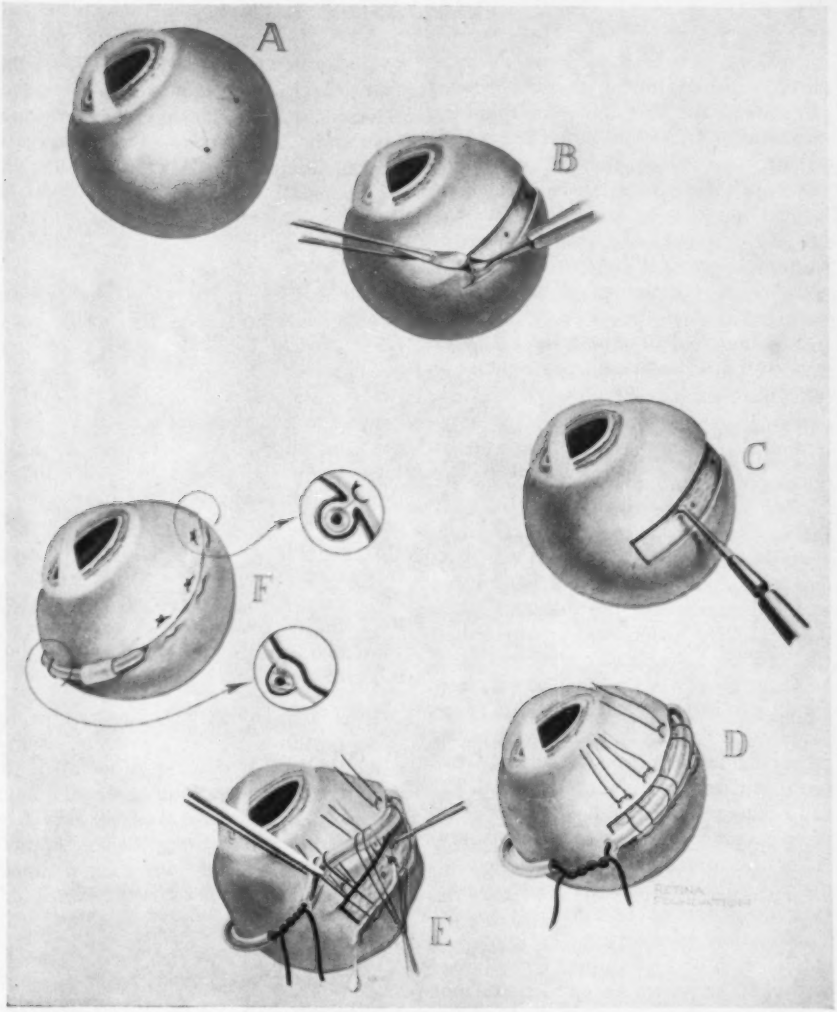

FIG. 2—Scleral buckling with circling polythylene tube.

(A) A diathermy mark is made under ophthalmoscopic control with a flat tip electrode on the posterior border of two retinal breaks. The latter are outlined on the sclera with dotted lines.

(B) A scleral lamella is excised parallel to the equator; the localizing diathermy marks are placed halfway across the width of the excised strip of sclera.

(C) Surface diathermy is applied to the area of scleral excision with a blunt diathermy point used in a somewhat tangential fashion. Note that the end of the excised area is not tapered.

(D) Mattress sutures are placed as indicated; a circling polyethylene tube is introduced under the sutures and cut to fit around the eye; the circling suture is drawn up and locked.

(E) The circling tube is gently pulled to the side, the sclera is incised in a meridional direction, and a fine diathermy needle is used to perforate the knuckle of choroid. It is preferable to perforate under a mattress suture.

(F) All mattress sutures are drawn up and tied. The circling suture is unlocked and a sleeve of polyethylene (PE-205) 8 mm. long is passed over the circling tube. The circling suture is tied, a suspension of chloramphenicol is injected in the lumen of the circling tube, and the sleeve is gently pulled over the knot of the circling suture.

by making two or three rows of light, partially penetrating diathermy between the ends of the scleral resection and the ora serrata. If all the retinal breaks are already covered by diathermy, walling off may be unnecessary. If breaks are located anterior to the buckle, walling off is indicated. However, when the case probably will require reoperation, such as a completion of the scleral buckling around the globe, walling off should be avoided, as it creates a weak area in the sclera which may rupture at reoperation.

The knot of the circling suture is untied and a length of polyethylene tube, measuring 8 mm. and of large diameter (PE-205), is passed like a sleeve over the circling tube (fig. 2, F). The circling suture is tied, a 41.6 per cent suspension of chloramphenicol is injected to fill the lumen of the tube, and then 0.5 cc. of the suspension is injected in the area of the scleral buckling. Chloramphenicol is used similarly with any length of polyethylene tubing that is sutured to the sclera. Penicillin, which was recommended in a previous paper,[8] has been replaced by chloramphenicol because many strains of staphylococcus were found to be resistant to penicillin. After the injection of chloramphenicol, the polyethylene sleeve is gently pulled over the knot of the circling suture. This method of isolating the knot is a modification of a procedure recently described.[8] The muscles are recessed about 2 mm. when they are reattached, except for the medial rectus, which is usually not recessed. The conjunctiva is closed with a running plain catgut suture and the canthotomy is sutured. Several drops of a 4 per cent atropine solution are instilled. Ointment is not used, since this would interfere with the examination on the following day. A pressure dressing of Elastoplast is finally applied.

Grignolo[4] has independently devised a somewhat simplified technique of buckling with a circling polyethylene tube which he recommends when the sclera has been damaged by previous operations and for cases with retinal breaks located very posteriorly.

SCLERAL BUCKLING WITH PARTIAL TUBE

Indications

Although the partial tube operation is effective in many cases, the buckle produced cannot be made as high and as permanent as in the circling tube operation; in unfavorable cases, reattachments are less frequently obtained with this operation than with the circling tube. The partial tube is used when there is insufficient subretinal fluid for a circling tube. Very often a circling polyethylene tube is placed under the mattress sutures and if, after perforation of the choroid, only a small amount of fluid can be released, the circling tube is shortened, utilizing only that part of the tube which is under the sutures.

In rare cases in which a retinal break is so posterior that it cannot be easily reached with a circling tube, a short partial tube may be indicated; this may occur when the orbit is small in relation to the size of the globe and a retinal break is located more than 20 mm. from the limbus.

Technique

This procedure, which antedates the circling tube operation, is identical to it except for the length of the polyethylene tube, which varies from a few millimeters to three quarters of the circumference of the globe. The exposure of the sclera, localization of the breaks, resection of sclera, and application of diathermy are carried out in the same manner. The mattress sutures across the resected area should, however, be placed more closely together, since these sutures support the polyethylene tube alone, without the help of a 2-0 silk cir-

cling suture in the lumen of the tube. Before the sutures are tied, two or three rows of partially penetrating diathermy are generally applied from each end of the buckle to the ora serrata, located about 6 mm. from the limbus. This additional diathermy walls off the region anterior to the buckle from the remainder of the retina.

If a tube shorter in length than half the circumference of the globe is used, it should be anchored to the sclera in order to prevent its migration. In all cases, it is important to bury each end of the tube as well as possible in the bed of the resection. The surgeon can best do this by using a tube shorter than the length of the scleral resection and by tapering the ends of the resection. It is advisable to use a tube of small diameter (PE-90). The small diameter helps to prevent migration. If a tube of large diameter is used, it should be, as a rule, not longer than about 10 mm., carefully anchored, and buried.

SCLERAL BUCKLING WITHOUT EXCISION

Indications

The primary indication for this procedure is a retinal break which is located so posteriorly that the sclera over the break is not easily accessible for lamellar excision; into this category fall macular breaks.

Another indication is an unexpectedly large amount of subretinal fluid obtained during a retinopexy. Such may be the case when there is a moderately large break through which fluid vitreous may pass and escape through the choroidal perforation. When this occurs, the surgeon often observes that even with the loss of a substantial amount of fluid, the retina does not flatten against the choroid. As a rule, this unfortunate situation is adequately handled by simple implantation of a short polyethylene tube.

Technique

The scleral buckling operation without excision is a somewhat simpler procedure (fig. 3); it may also be called retinopexy with implantation of polyethylene tube. After the sclera is exposed, the posterior edge of the retinal break is localized under ophthalmoscopic control. The localizing mark may cover a small break entirely. Using this mark as a guide, the area of the break is surrounded with one to three rows of diathermy applications, depending on the size of the break. Recently we have favored the use of either partially penetrating diathermy or surface diathermy with a blunt needle (fig. 3, A).

A scratch incision 2 mm. to 3 mm. long is made in the treated sclera; before the choroid is exposed, a mattress suture is placed on the lips of the scleral incision (fig. 3, B). Once the mattress suture is in place, the scratch incision in the sclera is continued until a knuckle of choroid is seen. This is perforated with a needle electrode in a tangential direction, allowing the subretinal fluid to escape. Should the retina become incarcerated in the choroidal opening, or should formed vitreous be lost, the preplaced mattress suture can be drawn up and tied. One or two other mattress sutures are then placed in untreated sclera in such a manner that a short tube, generally of fairly large diameter (PE-190) can be passed under the sutures (fig. 3, C). When these sutures are drawn up, the tube elevates the choroid in the region of the break, which should lie on the anterior slope of the buckle.

A single knot in the mattress sutures is tied and the fundus is examined. If there is no residual subretinal fluid, the sutures are tied and one or two anchoring sutures are placed through the tube and sclera (fig. 3, D). If the retinal break is large, a double row of partially penetrating diathermy is ap-

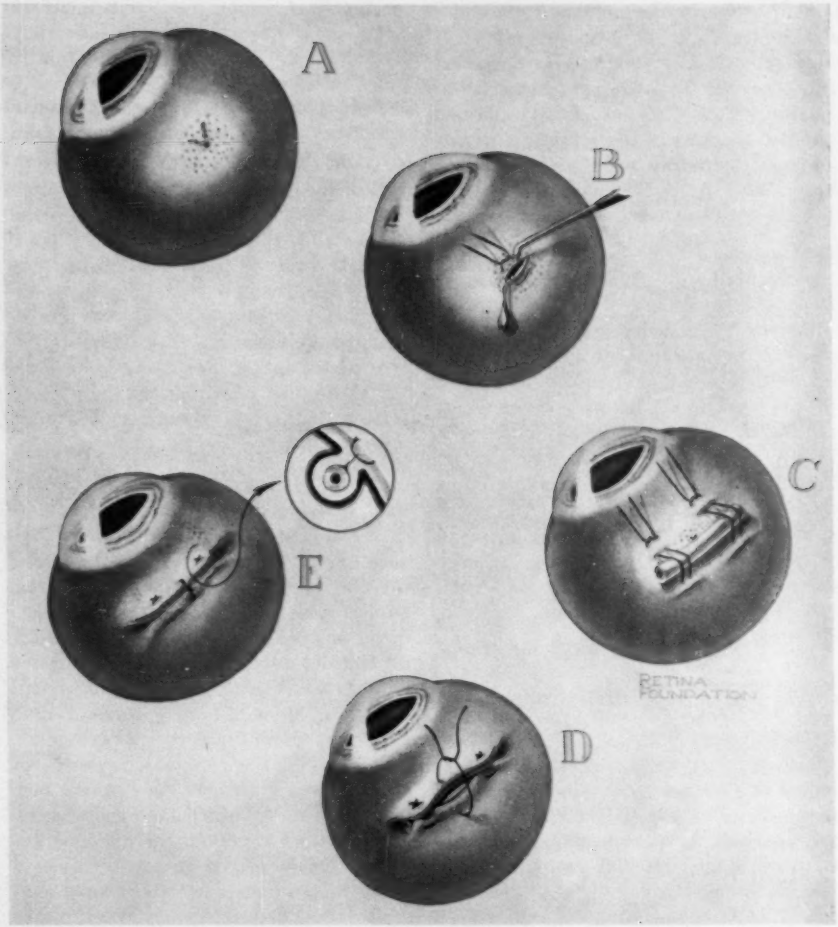

FIG. 3—Scleral buckling without excision in a case showing one small break and a limited retinal detachment.

(A) The localizing mark is surrounded by several rows of light surface diathermy.

(B) A scleral incision is made a short distance away from the location of the retinal break; a mattress suture is placed on the lips of the incision, and the knuckle of choroid is perforated with a fine diathermy needle. After the subretinal fluid has escaped, the mattress suture is drawn up and locked.

(C) Two additional mattress sutures are placed in untreated sclera and a short polyethylene tube is passed under them.

(D) The mattress sutures are drawn up and locked, and the fundus is checked; if the retina is lying against the choroid in the buckled area, all mattress sutures are tied. An anchoring suture is passed through the sclera and the tube to prevent its migration.

(E) Partially penetrating diathermy is applied to connect each end of the buckle with the ora serrata. The insert shows a cross section of the buckled area.

plied from each end of the buckle to the ora serrata in order to wall off the area of the break (fig. 3, E).

In treating macular breaks with this procedure, a few modifications are necessary (fig. 4). The macula is first localized with a small surface electrode; if the macular break is relatively large, two or three additional surface applications may be necessary (fig. 4, A). Remember that the sclera in this area is generally thick and, therefore, it is necessary to make relatively strong diathermy applications in order to affect the choroid. If the subretinal fluid is limited to the posterior pole, the sclera is not incised and a single perforating diathermy application is made through the sclera over the macular hole. If there is considerable fluid, the perforation is made at the point where subretinal fluid is most abundant. A tube 8 mm. to 10 mm. long and of fairly large diameter (PE-190) is placed horizontally across the macula under a single mattress suture (fig. 4, B), and the temporal end of the tube is anchored to the sclera (fig. 4, C).

A word of caution may be interposed here, since macular breaks are extremely rare and many times a macular cyst is mistaken for a hole. If any other retinal breaks are present, they should be treated and the macular area left alone; if the operation is unsuccessful and the macula still looks very suspicious, the above procedure may be used as a second operation.

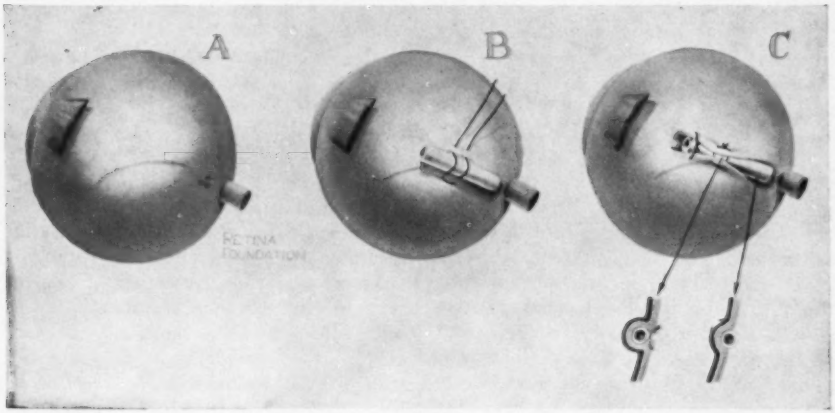

FIG. 4—Buckling without excision for a macular break.

(A) Lateral rectus, inferior rectus, and inferior oblique are temporarily tenotomized. A localizing diathermy mark is made, followed by two additional surface applications aimed at covering a large macular break.

(B) A mattress suture is placed in the sclera on the temporal side of the macula, and a medium-sized polyethylene tube (PE-190) is passed under the suture, after the choroid has been perforated in the macular area.

(C) The mattress suture is drawn up and locked; if ophthalmoscopic examination shows that the retina is reapplied against the choroid in the buckled area, the suture is tied and, in addition, a single suture is passed through the sclera and the polyethylene tube in order to prevent migration. On the left, cross section of the buckle under the mattress suture; on the right, cross section of the buckle over the macular break.

SCLERAL BUCKLING WITH A TRAP-DOOR FLAP IN THE SCLERA

Indications

This operation is used in cases of retinal breaks with little or no detachment, including cases of subclinical detachment. It makes the chorioretinal adhesion more certain, because the dia-

thermy applications are made over uniformly thinned sclera; it also permits the use of very weak diathermy applications and, therefore, considerably reduces the risk of postoperative complications, particularly vitreous hemorrhage. There is also less danger of creating an exudative detachment in the treated area which may change a preexisting subclinical detachment into a fully developed clinical detachment. Finally, it allows ambulation on the first postoperative day and leads to an earlier recovery.

Technique

The sclera is exposed and the posterior edge of the break is localized (fig. 5, A); the scleral incision is made as in the usual scleral buckling, but the surgeon, by omitting either the anterior or the posterior incision, produces a hinged scleral flap (fig. 5, B). This flap should cover more than the area occupied by the retinal break; the localizing mark should be approximately in the center of the flap. Light surface diathermy is applied with a blunt needle electrode to the area from which the flap was dissected (fig. 5, C). Since the retina is often attached to the choroid in cases where this procedure is used, diathermy should be just strong enough to show a small white mark in the retina, as a stronger application may produce a hole in it. One or two mattress sutures are then placed across the resected area (fig. 5, D), and a polyethylene tube is placed under the sutures and fitted into the resected area. As there is generally little or no subretinal fluid, a choroidal perforation is seldom performed. Before the mattress sutures are tied, the flap of sclera is replaced over the tube; a polyethylene "plate" is then passed in a meridional direction under the two loops of each mattress suture (fig. 5, E and F). This plate consists of a polyethylene tube which is split lengthwise. A small notch is cut at one end of the half-tube; the plates prevent the sutures from cutting through the sclera and hold the scleral flap securely in place. In addition, two or more single sutures may be used to approximate the cut edges of the sclera. It is frequently advisable to anchor the ends of the tube to the sclera, as in the partial tube operation. A diathermy connection may be made from each end of the buckle to the region of the pars plana ciliaris. Several individual trap doors may be made over widely separated retinal breaks.

Very recently, Grignolo[4] has described a procedure which resembles the trap-door technique.

CONCLUSIONS

The indications outlined for scleral buckling procedures differ from the indications proposed by the previous speakers for scleral resections. They reserve the resection procedures for complicated cases and use simple retinopexy for so-called simple cases, whereas the staff of the Retina Service in Boston feels that scleral bucklings can be advantageously adapted to practically all cases of retinal detachment. The generalized use of scleral bucklings has brought about important changes in the preoperative and postoperative management. For instance, preoperative bed rest is used only when an attached macula is threatened by an encroaching detachment, or for patients with severe recent vitreous hemorrhage, when bed rest allows settling of the blood so that ophthalmoscopy may be more satisfactory. In all other cases, the patients are encouraged to be up and about, in order to keep the retina detached prior to surgical operation, because the scleral buckling operation requires the loss of ample subretinal fluid at the time of operation. Pinhole glasses are not used either before or after the operation. In most cases only two days of hospitaliza-

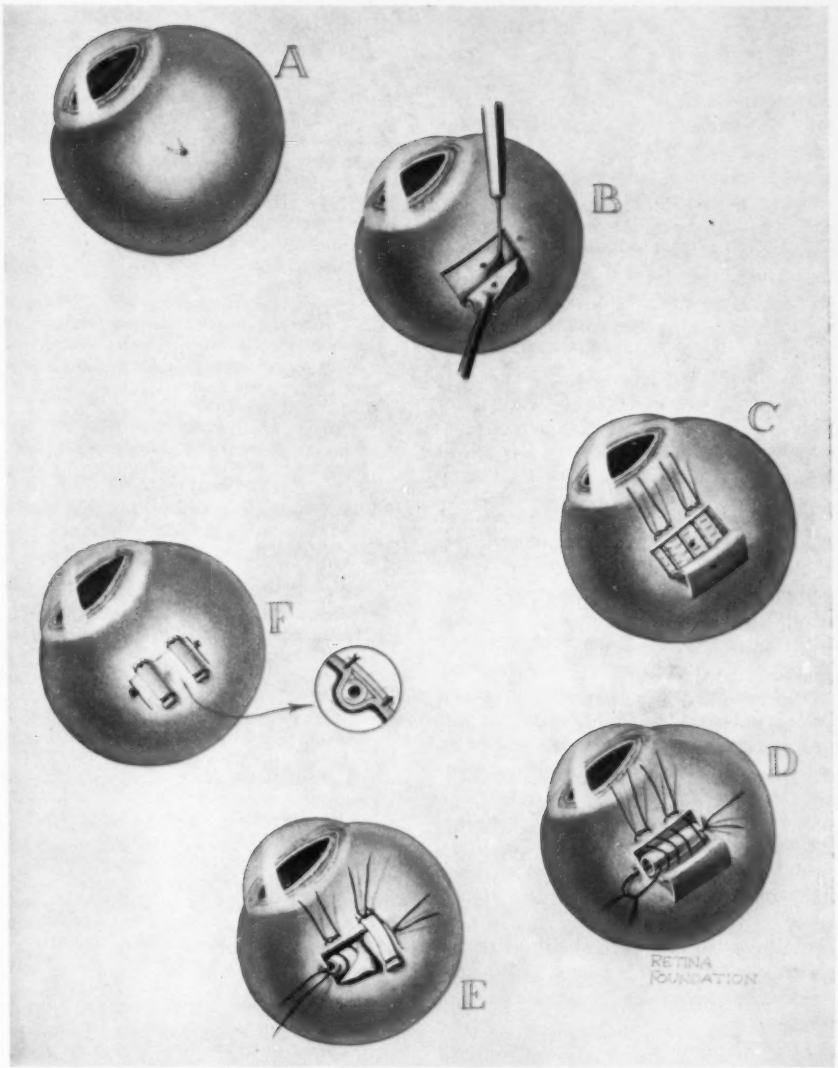

FIG. 5—Scleral buckling with a trap-door flap in the sclera.

(A) A diathermy mark is placed on the posterior edge of the retinal break.

(B) A trap-door flap of sclera is dissected.

(C) Light surface diathermy is applied to the resected area, and two mattress sutures are placed as shown. When no subretinal fluid is present, no perforation of the choroid is made; if a perforation is necessary, it is generally performed in the resected area.

(D) A tube of polyethylene, cut to fit exactly under the trap door, is placed under the sutures. The mattress sutures are drawn up and locked and the fundus appearance is checked; if the tube is in the correct position, it is anchored with a single suture at each end.

(E) A polyethylene plate has been placed under the loops of one mattress suture; the same is done for the second suture.

(F) Completed operation showing the four sutures tied, with a polyethylene plate under each mattress suture. Insert shows a cross section of the buckle obtained with this procedure.

tion are required prior to operation in order to complete the general medical and ophthalmic examinations. After operation only the eye that was surgically treated is covered, and the patient is placed on bed rest with no restrictions as to position. On the first postoperative day the eye is examined, and if the results are satisfactory, the patient is permitted to be ambulatory. On the third or fourth postoperative day, the eye dressing is removed and dark glasses are worn with or without refractive correction. At the end of the first postoperative week, the patient is usually ready to be discharged from the hospital.

One of the most useful things which has been learned from clinical experience is that to lessen traction on the retina, a high buckle is considerably more efficient than an extensive lamellar resection. Because of this observation, attempts to shorten the sclera or choroid have been given up and every effort has been concentrated on creating a high and permanent buckle in the proper location. A most startling phenomenon which illustrates the efficacy of scleral bucklings is that in nearly all cases of retinal detachment with marked fixed folds where the buckle closes the retinal breaks permanently, the retina slowly stretches without tearing until it again lines the choroid. This unexpected ability of the retina is particularly striking in instances of massive vitreous retraction.

Acknowledgment. The illustrations in this section were made by William Stenstrom.

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COMPLICATIONS OF THE SCLERAL RESECTION OPERATION

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My confreres have discussed the indications for and the techniques of the various resection procedures. Needless to say, a satisfactory operation requires good anesthesia, adequate exposure of the operative site, sharp instruments, and ophthalmoscopic visualization during the operative procedure. I am to consider the complications. I propose to discuss the complications of the lamellar resection and then those peculiar to the buckling procedure. Those complications encountered when a resection is done as a primary procedure will be considered before those seen more frequently in secondary procedures, though in many cases the same complications occur.

COMPLICATIONS OF THE LAMELLAR RESECTION

A lamellar resection is usually placed 10 to 13 mm. from the limbus and in this region seldom involves the vortex veins. However, any scleral resection procedure 17 mm. or more from the limbus invariably involves one or more of the vortex veins. The surgeon should be careful not to cut the vortex veins; they may be retracted with an iris hook or included in the resected area with only a thin strip of sclera being removed over the intrascleral ampulla. Cauterization of the bleeding vortex vein is seldom satisfactory. Should it be necessary to sacrifice the vein, it should be tied with a suture 1 to 2 mm. from its exit, lest the vein retract and the suture slide off. Two vortex veins may be sacrificed if absolutely necessary, although this will increase the chances of intraocular hemorrhage and secondary glaucoma.

The resection should be deep enough to leave only a very thin strip of sclera in its base. Drainage of subretinal fluid may be through diathermy perforations in the bed of the resection or over an area where one may expect to obtain subretinal fluid. Vitreous may be lost from incorrectly placed perforations that penetrate the retina. Too strong a current, even with a surface electrode, may penetrate the choroid and retina. Loss of vitreous may also be caused by increasing the intraocular pressure when closing the resection. Too much shortening of the eyeball may defeat the purpose of the operation (fig. 1). There may be so much slack in the retina that it does not come in contact with the treated choroid.

Secondary Procedure

Any scleral resection in an area previously treated with diathermy is fraught with many hazards. For this reason, it is best to delay a secondary major procedure, if feasible, because the treated sclera is often necrotic. It is like ice covering a fast-moving stream

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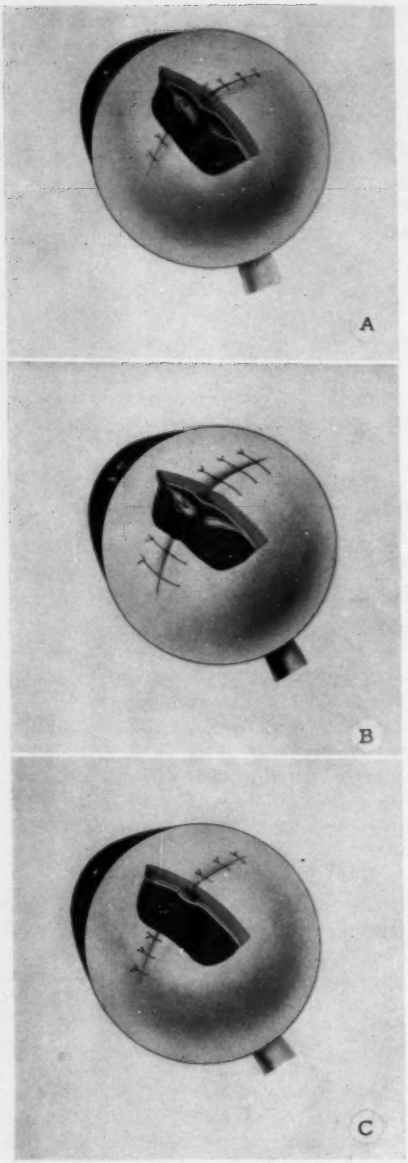

FIG. 1—(A) A wide resection with deep sutures creates too much slack in the retina; (B) as in (A), with too much sclera included in the sutures. (C) Correct resection with retina in contact with choroidal fold.

—there are hidden thin areas, and even the edges of the resected area may not be trusted to hold a suture. However, if an operation is necessary, the sclera should be exposed with sharp dissection and the episcleral tissue removed cautiously. This is best accomplished with a Gill knife or Desmarres scarifier. It is almost impossible to avoid vortex veins when working in that region of an eye which has already been surgically treated. Fortunately, when amassed in scar tissue, they seldom bleed profusely.

The area for resection should be outlined, and if feasible, the edges should lie in untreated sclera. If penetrating pins have been used in the strip of sclera that is being resected, it may be difficult to leave a thin base of sclera and the choroid may be exposed. When this occurs, sutures should be placed through the edges and tied as a temporary expedient until the resection is completed. It is not at all unusual, when performing a resection over a previously treated area, to find many weak spots in which the choroid is completely exposed and may rupture with the slightest pressure. Loss of formed vitreous at any time during a resection procedure is just as serious a complication as loss of vitreous during a cataract operation. Therefore, it is most important to recognize potential weak areas that may break open as the intraocular pressure is built up with application of diathermy or the tying of sutures.

The complications subsequent to the application of diathermy are (1) spread or loss of the reaction when coagulation current is used on a moist surface; (2) perforation of the choroid and retina if the current is too strong; (3) pulling out of the sutures if the edges have been treated with diathermy or if the sclera is necrotic; (4) an increase in intraocular pressure, which may cause a rupture of the choroid or a blowout in a

previously treated area, with loss of vitreous. If this release does not occur, the patient may have a temporary occlusion of the central retinal artery by increase in the intraocular pressure. This latter complication may account for some of the cases of amaurosis following successful surgical operation. Finally, if the diathermy reaction is too severe, it may cause a massive vitreous contracture.

In any retinal detachment procedure, inadequate drainage of subretinal fluid may prove very exasperating. This may be caused by thick viscid fluid, improperly placed drainage sites, or, in the case of resections, by fluid being trapped anterior or posterior to the resected area. The members of this panel are not in favor of the indiscriminate use of punctum dilators or quills to obtain drainage of subretinal fluid. If fluid cannot be obtained by perforations in the bed of the resection, a diathermy puncture or sclerotomy may have to be performed in another area where there is a collection of subretinal fluid. The appearance of pigment particles in the drainage fluid signifies that the retina is in close apposition to the drainage site and the surgeon should not try to force more fluid out of this opening. If the globe is hard, the surgeon should make every attempt to obtain all the subretinal fluid where the retina is visibly elevated, though it is better to desist than to have vitreous appear. Should ophthalmoscopic examination reveal considerable elevation of the retina, and if the eyeball is extremely soft, it may be that the intraocular pressure is insufficient to force the retina back into place. In such instances, if the surgeon is certain that the breaks are closed, he may resort to the intravitreal injection of saline solution, vitreous, or air.

Closure of the resected area may be complicated by (1) sutures pulling out of necrotic sclera; (2) perforation of the choroid with the suture needle, which may lead to loss of vitreous or hemorrhage; (3) rupture of the choroid because of increased ocular pressure; and (4) inability to close the wound because of increased intraocular pressure.

When suturing necrotic sclera, the use of split pieces of polyethylene tubing as a suture guard may prevent the suture from pulling out. The surgeon may use individual pieces or a large piece for four or five sutures.

Any defect through which vitreous escapes should be closed promptly. If it cannot be closed with additional sutures, it should be covered with a sheet of polyethylene, which is sutured into place. Additional subretinal fluid should be released if available. If not, a paracentesis should be performed and repeated if necessary. The surgeon must be careful not to force the closure and cause a rupture of the choroid and sclera in a weakened area. If, after repeated paracenteses, this cannot be accomplished, he can lightly suture polyethylene tubing into the resected area. In aphakic patients two or more paracenteses usually result in loss of vitreous through the paracentesis opening, and this must be avoided.

Intraocular hemorrhage at the time of operation is a rare complication of the resection procedure. If it occurs and progresses following penetration of the choroid for release of subretinal fluid, the reapplication of a diathermy point to the original area of penetration may stop the hemorrhage.

Postoperative Complications

The reaction following a lamellar resection usually varies as to whether it is a primary or secondary procedure and also as to the extent of the procedure. If two or more muscles are temporarily removed, or if the operation is a secondary or tertiary procedure, one may expect

a fairly severe postoperative reaction. The use of a pressure bandage at the time of operation may reduce this considerably.

Conjunctivitis

A persistent conjunctivitis is rare after a lamellar resection. When present, it is usually due to one of the sutures eroding through the conjunctiva and producing a small fistula or granuloma. This is usually readily removed under local anesthesia.

Infection

The reaction following a lamellar scleral resection may simulate an infection. After secondary procedures which require two to three hours or more, some may, despite careful technique, show evidence of a low-grade infection. There are some of us who use prophylactic systemic antibiotics, while others inject antibiotics subconjunctivally or retrobulbarly at the conclusion of the operation. Prevention calls for scrupulous attention to aseptic techniques and the judicious use of antibiotics. Should an infection occur, it should be treated with massive doses of antibiotics, especially those which culture and sensitivity studies have shown to be most effective.

Choroidal Detachment

A choroidal detachment, serous or hemorrhagic, is not an unusual complication of operations for retinal detachment. The surgeon may mistake it for residual detachment. Its importance lies in its recognition, so that the patient will not be subjected to an unnecessary secondary procedure. At times, it may simulate a malignant tumor. These choroidal detachments resemble those following cataract operations, though they are seldom associated with a shallow anterior chamber. Their presence does not materially affect the prognosis.

Secondary Glaucoma

Postoperative glaucoma usually occurs in an eye that has had a previously unrecognized glaucoma. Unquestionably, in some cases the intraocular pressure is elevated at the conclusion of the surgical operation. The use of Diamox intravenously during or at the conclusion of the operation and then by mouth for a few days may overcome this transient rise in pressure.

Uveitis

Severe postoperative uveitis can be a complication of many diathermy procedures. Uveitis is no more common after a scleral resection than after conventional diathermy. Overtreatment or extensive surgical intervention, especially in secondary or tertiary procedures, is the cause. Postoperative uveitis is characterized by more than the usual conjunctival reaction, corneal haze, and slit-lamp evidence of a severe anterior uveitis. It is best treated by atropine and corticosteroids. This condition may also be a precursor of irreversible changes, e.g., patchy iris atrophy, cataract, or complete retinal detachment with loss of light perception. It may develop into phthisis bulbi.

Tropias

Diathermy under a muscle invariably results in an abnormal attachment of the muscle to the globe. A scleral resection as a primary procedure does not produce as much reaction as, or any more than, the classic diathermy operation. In re-operations, however, the amount of tropia may be quite disconcerting. This may be avoided by recessing the muscle 2 to 3 mm. at the time of the operation. The use of a strip of gel film or a thin sheet of gel foam between the muscle and the sclera may also prevent the development of adhesions, but present experience is limited.

Enophthalmos

Any eye that has undergone two or three operative procedures for a retinal detachment is usually smaller than the opposite eye and there may be a slight ptosis or a pseudoptosis from enophthalmos. This complication is difficult to avoid in last-resort procedures but can be avoided in some cases by paying meticulous attention to the resuturing of muscles and to the closing of the conjunctiva without sacrifice of healthy tissue.

Systemic Complications

Systemic complications usually occur in patients in their sixties or seventies who have been kept immobile for too long a time. Mental confusion due to binocular patching is rarely seen and is usually relieved by unpatching the eyes and permitting the patient to use dark glasses instead.

Thrombophlebitis is not an uncommon complication and may result in the usual sequelae and even sudden death. This is best prevented by encouraging the patient to move his limbs and by permitting early ambulation. Cardiovascular accidents can also occur and, if not fatal, may leave the patient permanently crippled. A careful medical evaluation of the patient prior to surgical operation, encouragment in exercising the extremities and in early ambulation are the best measures to prevent systemic complications.

COMPLICATIONS PECULIAR TO THE SCLERAL BUCKLING PROCEDURE

By definition, the buckling procedure involves the invagination of the sclera with polyethylene tubing posterior to the position of the break (fig. 2). This introduces two complicating features not always seen in lamellar resections.

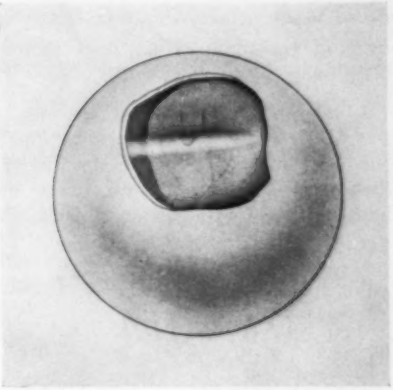

FIG. 2—Retinal break lying on the posterior edge of the buckle and sealed with diathermy.

First, it may be difficult to resect the sclera if holes are 17 to 20 mm. from the limbus. Therefore, an incorrectly placed buckle with the break on its peak or posterior edge may keep the break open (fig. 3). This can be overcome by increasing the height of the buckle or by placing the buckle more anteriorly and closing the break with a separate barrage of diathermy. The height of the buckle may be increased either by sliding tubing with a greater diameter into

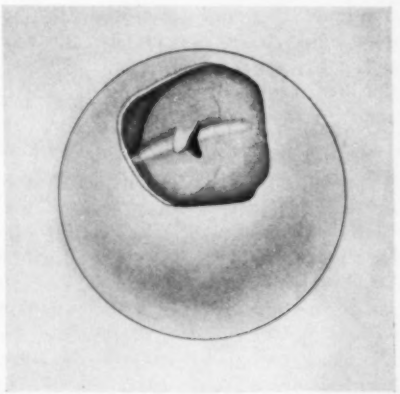

FIG. 3—Retinal break straddling buckle and being kept open.

the resected area overlying the break or by tightening the tubing and thereby creating a higher buckle.

Conversely, a buckle well posterior to the break may leave the break open, since there is usually some elevation of the retina on the anterior edge of the buckle (fig. 4). In partial tubings, un-

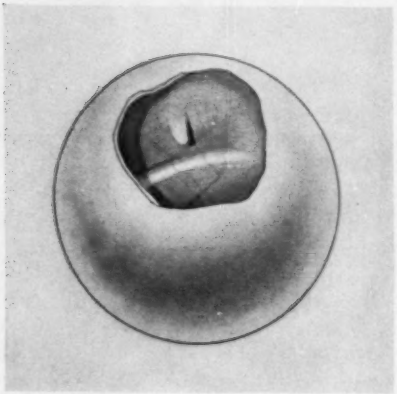

FIG. 4—Retinal break entirely posterior to the buckle and not closed.

less well sealed to the ora on either end with diathermy, there may be leakage producing a detachment elsewhere. No matter what procedure is used, the surgeon must remember one of the first tenets of retinal detachment surgery—the breaks must be closed or completely walled off with diathermy.

Second, any scleral resection 17 mm. or more from the limbus invariably involves one or more vortex veins. These veins may be avoided by placing the buckle posterior to them. They can be lifted up with an iris hook, or the surgeon can include the ampulla in the resection without penetrating too deeply into the sclera, as described previously. When a buckling procedure is used as a secondary or tertiary operation, the hazards present are the same as those seen in an ordinary lamellar resection. The sclera is frequently necrotic, and bare choroid is frequently exposed in the base of the resected strip. When the resection is well posterior to the equator, it is even more difficult because of the inaccessibility and the other mechanical disadvantages of working in a small, deep hole.

In a partial tubing procedure it is usually not difficult to place a polyethylene tube in the bed of the resected area; then the sutures may be tied as in an ordinary lamellar resection. Because of the introduction of the volume of the tube and scleral coat into the closed vitreous chamber, the pressure may be sharply increased, making closure of the resected area more difficult. This may require the release of additional subretinal fluid or a paracentesis, as described previously. It may be better to leave the tube partially exposed than to risk the loss of vitreous from an attempt at forceful closure. For this reason it is best to use tubing of smaller diameter in partial resections.

In a partial tubing procedure it is important that both ends of the tube be completely covered with sclera. If they are allowed to protrude, the sutures will eventually become weakened at the ends, the polyethylene tubing will attempt to regain its straight form, and the ends will protrude and may erode through the conjunctiva. When this occurs the patient has a persistent conjunctivitis, and one usually finds a small fistula at either end of the tubing, where a small drop of pus or exudate may be expressed. To correct this, expose the end of the tube, cut it off flush with the sclera, and rebury it. If the condition does not improve, the tube may have to be removed. Removal can usually be accomplished without much difficulty and usually leads to prompt relief of the

conjunctivitis. Experience has shown that this does not necessarily alter the effect of the operation.

In re-operations and in treating patients with very thin sclera, the surgeon can obtain a much better buckle with an encircling tube than with the partial tubing procedure. Here the buckle is produced by tightening the suture within the polyethylene tubing and does not depend upon the tying of sutures in areas of necrotic or thin sclera. Placing a tube completely around the eye, however, requires a certain amount of manipulation of the muscles, and if the resection has been completed before the tubing is placed around the eye, one must be very careful, in the manipulations that follow, that a thin area of sclera does not perforate prematurely. The diathermy should be placed in the area of resection and the subretinal fluid released before an attempt is made to tighten the encircling tube.

A few sutures should be placed in the area of the resection and as much of the tube as possible buried before it is tightened. If the resected area is considerably behind the equator, it is important that the tubing be anchored in front of the equator in that portion of the globe in which it is tied; otherwise it will slip behind and the mechanical advantage of the encircling tube will not be obtained. The tubing should be cut to a length of 75 mm. or more and then threaded with a 2-0 black silk suture, with both ends of the suture knotted so that they will not pull through the tubing while it is being placed around the eye. After the release of subretinal fluid, an additional few millimeters of tubing may be removed from either end before the knot is tied.

If eyes are extremely soft, the tubing should not be reduced in length too markedly. The ends of the polyethylene tubing should be halved in opposite directions so that when the tie is completed they will not be sticking up. This prevents erosion through the conjunctiva. If the intraocular pressure is not low, the surgeon must be careful that in tying the suture he does not increase the intraocular pressure and force vitreous out of a previously treated area in the sclera.

There is no question that most eyes that have had an encircling tube show considerably more and longer reaction than those in which the conventional scleral resection operation is performed. At times this may be rather alarming and the surgeon may feel that he is dealing with a retro-orbital infection. An other problem created by the encircling tube is a postoperative glaucoma. This may be due to an exaggeration of a previously unrecognized and undiagnosed glaucoma or possibly is the result of occlusion of the vortex veins by the encircling tube, or the development of peripheral anterior synechias. To our knowledge, there has been no authenticated case in which the tube has perforated the retina and has been seen in the vitreous. In two or three cases part of the tube has been visible with the ophthalmoscope but has been subretinal and the eye has shown no reaction. This has occurred in patients in whom glaucoma has been recognized subsequent to surgical operation.

TERATOMA OF THE ORBIT

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TERATOMAS (embryomas) are congenital tumors which are classified embryologically as containing tissue derived from all three germinal layers. Such tumors are exceedingly rare in the orbit and are sometimes malignant. They usually grow rapidly and may assume enormous proportions, rapidly filling the whole orbit and causing a destructive proptosis through exposure. The prognosis has been bad, for removal usually necessitates exenteration of the orbit.

The case presented is interesting because of the rarity of the tumor, which was at first thought to be an orbital encephalocele, and because in none of the cases reported heretofore has the eye been saved.

Teratomas are thought to represent an abortive attempt at the formation of a human body—a fetus *in foeto*. Duke-Elder[1] has summarized the present concept of the origin of these tumors as follows:

> The fertilized ovum and the first segmentation spheres are toti-potent, at a later stage the dividing cells are pluri-potent, and finally the somatic cells become strictly limited to the faculty of producing a single tissue-type. It is obvious that if some cells at an early stage of segmentation become independent of the others and develop separately from them, a large number of potentialities is possible. Complete separation of the first two segmentation spheres results in uniovular twins; partial separation results in double monsters (Siamese twins); separation at a later stage results in a parasitic monster; and at a still later stage in solid teratomata composed of various types of tissues and aimless organ-rudiments.

Duke-Elder has classified teratomas of the orbit as follows:

1. A complete fetus implanted in the orbit (orbitopagus parasiticus)
2. A portion of a second fetus in the orbit
3. A tumor consisting of all three germinal layers
4. Tumors containing representatives of two germinal layers only
5. Tumors containing representatives of one layer only

The following case falls into the third group of Duke-Elder's classification. Fourteen cases of similar type have been reported previously (Bröer and Weigert, 1876; Courant, 1893; Lagrange, 1895; Ewetzky, 1900-1908; von Hippel, 1906; Coulter and Coates, 1910; Cattaneo, 1925; Corbett, 1925; Malkin,

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1926; Kearney, 1926; Kirwan, 1935; Burnier and Salles, 1945; Harbert, 1949; Pesme and Maupetit, 1951).[1,2,3]

CASE REPORT

D. N. was first seen by one of us (LJG) on February 17, 1956, four hours after birth. The left eye was found to be markedly proptosed, with chemosis of the conjunctiva and abrasion of the corneal epithelium (fig. 1). The orbit was markedly enlarged to palpation. The globe was partially replaceable, and when the child cried there was definite increase in the proptosis.

FIG. 1—Appearance of patient on February 17, 1956, four hours after birth.

FIG. 2—Roentgenogram of skull taken on day of birth and showing marked enlargement of the left orbit. The four opacities in the left orbit represent rubber pegs over which the lid sutures were tied.

On the same day, a temporary closure of the lids was effected, and on February 22, 1956, a medial and lateral tarsorrhaphy was performed.

Meantime, the patient was seen in consultation by the neurosurgeon (EMF). Roentgenograms of the skull showed a marked enlargement of the left orbit (fig. 2). It was thought that there was an erosion of the inferolateral wall of the left orbit. A spinal puncture needle was gently inserted retrobulbarly, with withdrawal of the stylette on the way in and on the way out at frequent intervals. Only one small drop of fluid was obtained. A tentative diagnosis of orbital encephalocele was made, and it was decided to keep the child under observation and watch for evidence of increasing proptosis. If possible, it was hoped to postpone a definitive operation until the child was somewhat larger, the skull bones more rigidly fixed and the dura more substantial.

On May 31, 1956, when the child was approximately three months old, an exploratory craniotomy was performed by the neurosurgeon (fig. 3). No defect in

FIG. 3—Appearance in July 1956, following exploratory craniotomy. The proptosis persists.

the orbital roof could be found. On October 25, 1956, the orbit was explored through a modified Krönlein incision. As soon as the periorbita was incised, a large cystic mass collapsed into the wound. This was dissected free, and a portion was excised for frozen studies.

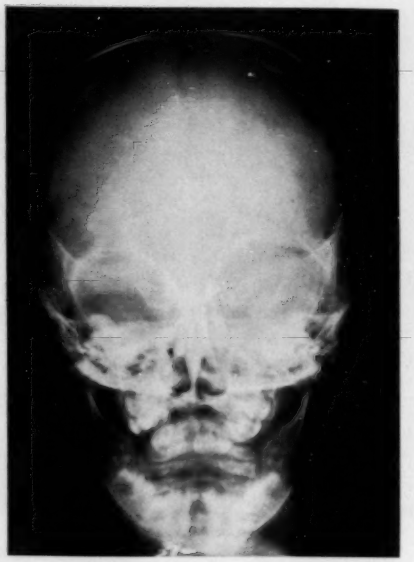

FIG. 4—Roentgenogram of skull taken on November 24, 1956, following excision of the tumor through a Krönlein incision. The bone defect of the previous craniotomy can be seen.

The mass was found to contain no blood, but was filled with a clear fluid with some granulations. By careful sharp and blunt dissection the root of the cyst was found to be attached to the optic nerve at the apex of the orbit. This was carefully dissected free, and a tumor the size of an adult thumb was removed. The postoperative course was uneventful.

During the past year there has been a marked reduction in the proptosis, the eye has remained in an apparently good

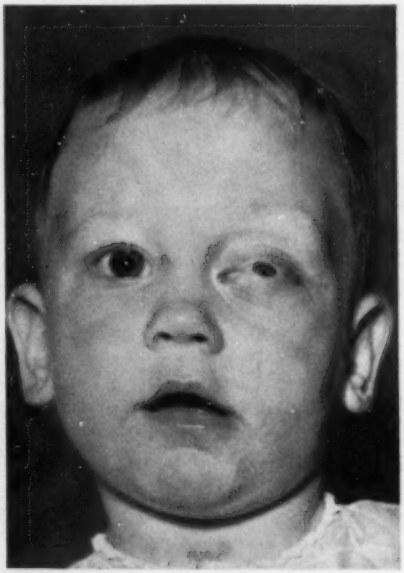

FIG. 5—Appearance of patient on May 10, 1957. The proptosis has almost completely subsided. There is still a marked enlargement of the left orbit and deformity of the lids.

state, with normal reaction of the pupil to light (figs. 4 and 5), and good extraocular muscle coordination.

On September 5, 1957, the lateral portion of the tarsorrhaphy was incised and ophthalmoscopic examination performed under general anesthesia. The media of the affected eye were found to be clear. The fundus showed pallor of the optic nerve and attenuation of the retinal vessels.

PATHOLOGICAL REPORT

The specimen consisted of several fragments of pink-purple to gray translucent membranous tissue, smooth and glistening on the external surface. The opposite surface consisted of soft fibrous strands with evidence of ecchymosis. In all, these measured $4.5 \times 3 \times 1.5$ cm. Within one of these fragments cyst-like

FIG. 6—Microscopic section of the excised tumor, showing a portion of a cyst wall which demonstrates partly keratinized squamous epithelium, which represents an ectodermal component of the teratoma. (×150)

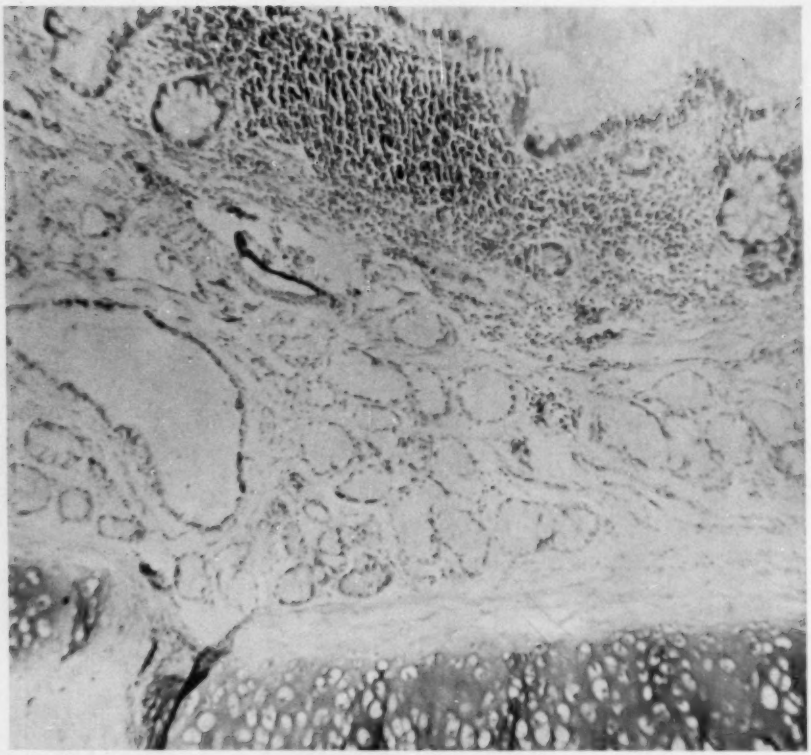

FIG. 7—Microscopic section of the tumor which demonstrates cartilage and mucus-secreting glands of respiratory type. In the upper portion of the photograph may be seen glands of intestinal-type mucosa bordering a lumen. This section represents endodermal and mesodermal components of the teratoma. (×100)

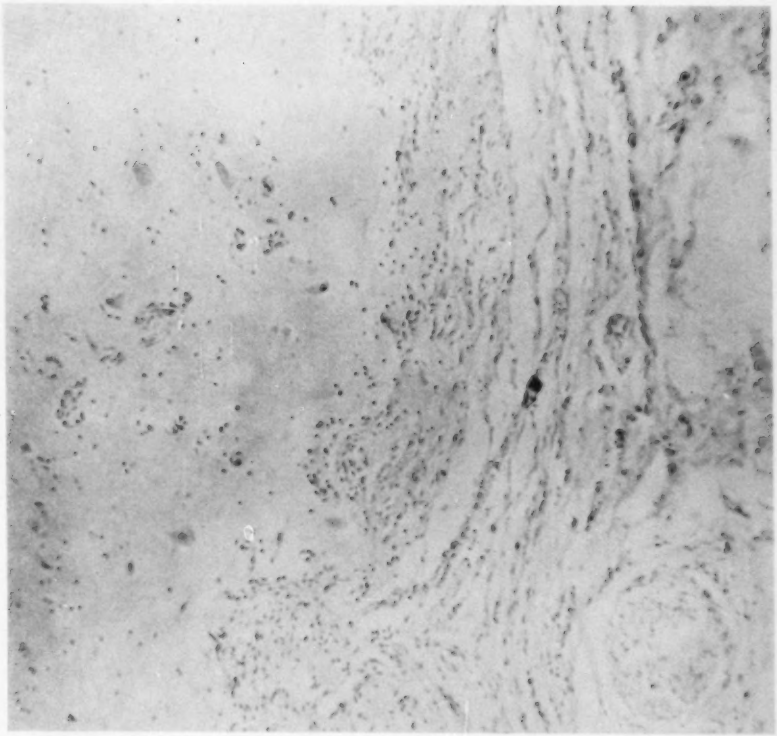

FIG. 8—A microscopic section through another section of the tumor representing central nervous system tissue. Neuronal and glial cells may be seen on the left, and seen centrally are meninges. At the lower right, a cross section of a portion of a peripheral nerve is visible. (×100)

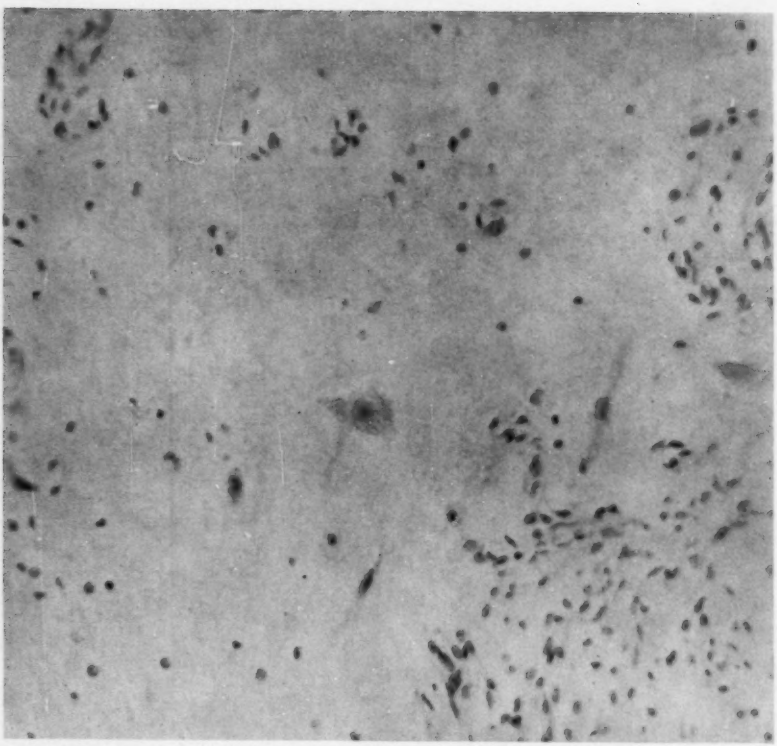

FIG. 9—Higher magnification of section in figure 8 showing neuronal, glial and meningeal cells. (×200)

structures of various sizes were apparent, the largest of which measured 1.2 cm. in diameter. On the cut surface the cysts contained clear fluid and the cavities were trabeculated with fine elevations. Representative sections were taken and labeled.

Microscopic examination of the sections revealed portions of cyst wall partly lined by compressed squamous epithelium (representing the ectodermal component of the teratoma) (fig. 6). Another section of the specimen demonstrated cartilage and mucus-secreting glands of a respiratory type, and in another area mucous glands of an intestinal type bordered a lumen (representing endodermal and mesodermal components of the teratoma) (fig. 7). Still another area showed neuronal and glial cells, meninges, and a portion of a peripheral nerve (figs. 8 and 9).

The microscopic findings are those of a cystic teratoma in which the component ectodermal, mesodermal and endodermal tissues show adult characteristics in that they appear well differentiated.

SUMMARY

A case of teratoma of the orbit is presented. Microscopic examination of the tumor showed that it contained all three germinal layers. The case is presented because of the rarity of the tumor, because of the difficulty that was encountered in differentiation from orbital encephalocele, and because in none of the cases reported heretofore has the eye been saved.

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Symposium: The Time Factor in Graduate Education

FACTORS DETERMINING THE LENGTH OF A RESIDENCY

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WHAT is the optimum length of time for a residency in ophthalmology? I have been asked to speak on the "Three-Year Residency," but I am not committed to defend the idea that this is the optimum in every hospital. This is the length of our own residency at the hospital of the University of Pennsylvania, and under our setup I believe that it is best.

At present, residencies in ophthalmology vary from two to five years. Residencies in general medicine and general surgery are usually four to five years. What factors determine the length of a residency?

The objective of the residency training program is the first consideration. The majority of ophthalmologic residencies in this country, including those in my own institution, have as their sole objective the development of clinical ophthalmologists who will serve their communities by administering to their patients the best eye care in all branches of ophthalmology. In the course of time they may also become teachers, administrators, and investigators, and in addition to practicing good medicine may further advance the limits of our knowledge, but these attainments are secondary and not the primary purpose of their training. Other institutions may start with an entirely different philosophy. They may aim primarily at developing teachers, administrators, and research workers, who may only secondarily engage in the private practice of ophthalmology. Some may see patients only as interesting examples of pathologic physiology or deranged chemistry, and they may never have the concern or responsibility of the patient as a person. Their program would necessarily be quite different, and undoubtedly would necessitate more time in preparation. Others may tend to specialize, for example, in surgery or neuro-ophthalmology. Occasionally such institutions do so at the expense of providing well-rounded training in the other disciplines unless the specialization is done after the regular period of training is over.

For those programs which aim to train ophthalmologists as practicing physicians, the three-year period seems adequate. The first year must be spent largely in learning the basic sciences applied to ophthalmology and the techniques of examining an eye, while the second and third acquaint the resident with the actual problems of the patient, and with increasing responsibility. Every one is agreed that this period of acquiring full responsibility for the care of the patient takes at least two years. It cannot be acquired in less time even if the patient load and the whole spectrum of disease are increased.

For those programs which make more demands, such as teaching, research, and

From the University of Pennsylvania.
Presented as a *Special Program* by the Teachers' Section: Ophthalmology at the Sixty-Second Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 13-18, 1957, Chicago.

specialization, a four-year or a five-year program similar to that in general surgery must be contemplated.

Another factor besides the type of program contemplated is the economic one. At the present time most applicants have completed four years of college, four years of medical school, one year of internship, and two years of army service before they are admitted to a residency. Even three years added to this seems almost unendurable under our present economic setup. Most of the applicants are married and beginning to raise families. The compensation, if any, which is paid during the residency is totally inadequate for even bare support. To consider prolonging this period beyond three years is unfair unless provision is made for compensation equivalent to the earning power in that community of a practicing physician.

A third factor is the restrictions imposed by examining boards, and by various services which may make rules governing the time a trainee must spend as a resident or graduate student. After a careful analysis of various factors, the American Board of Ophthalmology, for example, has recently changed its required minimum period of training prior to admitting candidates for examination:

a. Three years of formal ophthalmological training (residency and basic science course) plus one year of practice of ophthalmology or of institutional work, making a total of four years.

b. Two years of residency and basic science course plus three years of practice or institutional work; a total of five years.

From this it is evident that the American Board favors a three-year residency (including basic science training). The Board has made no statement, to my knowledge, favoring a longer period of training, but it certainly penalizes a period shorter than three years.

All of you are familiar with the organization of the three-year residency. The first year is devoted almost exclusively to the basic science curriculum. Some of us are fortunate in having a graduate school as part of our own institution where this basic training can be given without the necessity of setting up independent courses for three or four men each year — a procedure costly in both time and energy. For those hospitals not so fortunately affiliated, it is either necessary to create these facilities or to accept only those candidates who have had basic training in one or several of the graduate courses offered from time to time throughout the country. At best this makes the standard of training variable and creates difficulties for the candidates, since these courses are not given at uniform times throughout the year or concurrently with the commencement and closure of residency programs. Most residency programs start on July 1, while graduate courses usually run from October to May, December to March, or through July and August. This means loss of valuable time for the candidate who finishes his basic training after Labor Day and has to take his family to Florida for the winter to sit in the sun until he can start a residency the following July.

A final factor is the changing pattern of medical education. All medical schools are realizing the economic strain imposed on those aspiring to enter this field, and especially those desirous of specializing, and they are trying to cut down on the required time. In the fall of 1959 the Johns Hopkins Medical School will institute a new program in which certain selected individuals will be admitted to the medical school after two years of college instead of four. The medical course itself will take five years, making a total period of seven years, but in this time the individual will have earned a college degree in the humanities and a

degree of Doctor of Medicine, and he will also have served one year of a rotating internship. This will be made possible by the judicious use of the facilities of the departments of the various schools within this great University, and by employing a 40-week schedule (September 10 to June 28) for the first four years in the medical school and 52 weeks in the final fifth year.

Under our present system a man starting college at 18 years of age usually begins his residency in ophthalmology when he is 29. Under the new Hopkins system he would be 27, a saving of two years. There are, of course, many objections which can be raised against this innovation, but the other schools in the country are going to watch this experiment with great interest. Other changes in the medical curriculum are being adopted in some schools which may have marked effects on both the length of time and the content of our training programs. All these changes will influence the optimum time for a residency.

SUMMARY

The length of the residency training program is conditioned by a number of factors:

1. The type of ophthalmologist to be developed: a well-rounded practicing clinician; a consultant and administrator of a large department; a full-time research worker; or a clinician who limits himself to a relatively small field, such as surgery, neuro-ophthalmology, or pediatric ophthalmology
2. The economic status of the candidates
3. The decision of examining boards and licensing groups
4. The changing pattern of medical education

THE FOUR-YEAR TERM

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IOWA CITY, IOWA

WE are called a panel of experts on residency programs. I might define an expert. An expert is a man who knows all the answers but does not understand the question.

We are here to discuss various phases of resident education and, particularly, residency training programs. Ours, basically, is a four-year program. I don't want to offend anybody, but I feel that it is a waste of time to spend four years on some residents who may not need that much training. I would like to outline this four-year program for you briefly.

The first six months of the first year are spent in pathology. The second six months of the first year are spent learning refraction. The second year begins with the period on the Veterans' Hospital service and in neurology, and at the same time we start to teach major surgery. The second six months of the second year are spent on the "squint" service. In the third year the first six months are spent on external diseases. As you

From the University of Iowa.

can see, this training is pyramidal, with each service increasing the responsibility. The last six months of the third year are spent on what we call house cases. The resident is responsible for the patients who are admitted to the hospital. He works up all of the preoperative clinic cases. He is responsible for preparing the schedule for surgery, and he is the ward doctor. The first six months of the fourth year are used in seeing what are called return patients and are devoted almost entirely to the return patients in the glaucoma service. These are, however, patients who were operated on while he was on the house service, and he knows them quite well. The last six months of the service are spent in one of two areas, either on the private service or, in some instances, on a research problem that we hope has been started during the residency.

Our main purpose at Iowa (and beginning with July of this year, our main function) is to develop teachers and research men. As a side issue we may actually develop a few clinical practitioners, but our main purpose is to develop teachers and investigators.

With the initiation of the National Institutes of Health program for training, one of the problems that has caused a great deal of trouble may be eliminated; that is, the problem of going into debt during a residency program. In the past, men have gone into the basic sciences from medical schools because they have been paid a fairly decent living wage during at least the major portion of their training program in the basic sciences.

We did a survey at Iowa to compare the incomes of the basic science group with those of the clinical group. While the members of the basic science group are not paid as much as the clinicians, total amounts received from the time they graduate from medical or graduate school until they are 60 years old are practically the same. In other words, if we can maintain the clinician and the teacher at a fair living wage during these formative years, during the years in which these men are being trained to become teachers, then I think we may be able to maintain some of them in the teaching profession.

Teaching is, to my mind, one of the most important functions of a medical school, and any medical school and any residency training program would be lost without teachers. These teachers are of two varieties, the full-time teacher (which I am, more or less, as well as almost my whole staff) and the practicing teacher (the teacher who gives a part of his time to the medical school in order to help train others). The practicing teacher earns his money, his keep, actually in private practice. Both of these men are good teachers, but I am sure that we all neglect certain areas where we should give perhaps a little more time and thought to developing our teaching program.

Now I would like to say a few words about the basic science courses. My feeling has been that it is much better to use a pyramidal system in teaching the basic sciences. I believe that it is better to teach the basic sciences while the resident is being trained in all of his fields. In other words, a subject is taken up during the entire residency training program, so that every day a certain amount of teaching material is offered the resident. The teaching material is not offered to the resident all at one time, but every day a little is given, and this may be repeated twice during his four-year residency. I feel that a great deal more information is gained by the resident by this method than by having a concentrated six-month or nine-month course in which he goes to school and listens to lectures or watches demonstrations all day long. I

feel that it is much better to have part of his clinical training in conjunction with the lectures and demonstrations.

There are many methods of training individuals. I feel that the main function at our institution is to develop teachers and investigators, to give them the time in which they can develop their sciences, to choose the man whose main interest is in teaching and in investigation, and to let some of the other institutions train the men for practice. You say, "Perhaps you develop the wrong kind of individual." I feel that with our type of program we still develop pretty good men who can go into practice, because they have developed a broad base in ophthalmology, *a very broad base*, as a matter of fact, and one of the things that we are trying to do is to maintain ophthalmology as a part of medicine, *a very essential part of medicine*, and never for one minute to separate ophthalmology from the whole field of medicine.

One of our problems, of course, is lengthening the service — actually increasing the time. This, I think, is not too bad a hardship provided you can pay these people a fair living wage during this residency program. I hope that in the future we will be able to do so, and I hope that we can develop teachers and investigators in the near future.

SHORTENING THE MEDICAL EDUCATION TIME SPAN, INCLUDING THAT OF UNDERGRADUATE OR GRADUATE EDUCATION

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MUCH attention is being directed towards remedying the defects in our American system of education, which Clarence Faust[2] has described as "a patchwork of historic accidents." The critics point out that in our system each educational segment is regarded as a hurdle to be cleared before the next division can be entered. They object to these sharp lines of demarcation and suggest that the program should be slowly progressive and continuous and not one divided into many separate units. Although these educators are acutely conscious of the need of shortening the period of training, they feel that a satisfactory abbreviation can only be accomplished by considering the program as a whole. To emphasize the desirability of an over-all participation, Severinghaus[4] has compared the educational program to a novel. He points out that both consist of many chapters, each of which is an integral part of the composite whole, and that it is impossible to leave out or greatly abbreviate one or two chapters of a book without destroying its continuity. By this analogy he reveals the dangers of piecemeal abbreviation of the educational program, for if subjected to this same treatment, it too will lack continuity. Granting the wisdom of this argument and the desirability of considering an over-all reduction, the fact remains that this millenium is not at hand, so we are

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forced to discuss the possibilities that do exist. As I see the situation, there are two fields in need of further exploration:

I. COMBINATION OF PREMEDICAL AND MEDICAL COURSES

This scheme, which is used in many universities, has as many opponents as it has advocates. Those who object to combining three years of college with four years of medicine believe that by eliminating the final academic year the student is deprived of a most valuable asset; viz., the culmination of his training in liberal arts. These educators point out that most students taking this combined course of study neglect the humanities in their premedical years and concentrate on the sciences. In many universities this objection is being met by a rearrangement of the premedical curriculum. In these institutions emphasis is being placed upon the liberal arts and the student is given only the required amount of instruction in the sciences. However, some universities (e.g., Columbia) no longer offer such a combined course of study and believe that "an abbreviated contact with a true liberal arts preparation and a condensed curriculum in the basic sciences, supplemented by superficial acquaintance with a few social problems, may not serve the best purposes of the profession and, in the long run, of the nation."[3]

In contrast to this position, Johns Hopkins has instituted a pilot plan which permits a limited number of college students to enter medical school at the end of the sophomore year.[1] Under this revised program the students will be in residence in the School of Medicine but will be required during their first year in medical school to take three courses under the Faculty of Philosophy on the university campus — one in elementary physics and two in humanistic and social subjects of their own choice. In both the second and the third year these students will be required to elect at least one liberal arts or social science course. At the end of the third year they will be eligible for Bachelor of Arts degrees given by the Faculty of Philosophy. The combined course runs five years and the last year is spent in a comprehensive 12-month internship. Thus, upon its termination the successful student will have secured an academic degree and a medical degree and will have had one year of internship —all in five years. The faculty at Johns Hopkins anticipates that this continuing contact with the humanities and social sciences will not only aid in "lowering the existing barriers between the medical sciences and liberal arts," but also will result in more students pursuing careers in the basic sciences of medicine. Thus they hope to overcome the present serious shortage of teachers and investigators.

Inasmuch as this plan has only recently received the final approval of the advisory board of the Johns Hopkins University's medical faculty, it is impossible to do more than speculate on its future. I believe that it will appeal not only to those students interested in academic medicine, but also to those anxious to secure a degree in the shortest possible time. It is their hope that this latter group can be excluded by a thorough appraisal of all applicants. I await with great interest future reports on this plan. In the meantime, if we are to approve combining the premedical and medical courses, let us be certain that the preliminary years are spent wisely. Our foremost duty to the premedical student is to point out the need of an adequate background in the humanities as well as in the sciences.

II. REVISION OF THE RESIDENCY PROGRAM

In discussing ways and means to shorten this period of training we must not consider any plan which would result

in inadequate preparation. Those of us who have spent years in supervising residents realize that it takes time for the trainee to assimilate information. For this reason I am opposed to any radical reduction in the length of this period. However, certain possibilities in need of consideration come to mind:

A. Integration of Basic Science Instruction into the Residency Period

Several teaching centers are following this plan and do not require a preliminary course in the basic sciences before the student starts his residency. Although in many hospitals without a university connection such integration is not possible, it should be adopted whenever feasible. If a separate course in the basic sciences is taken, there is often an interval of several months between its completion and the beginning of the residency. This gap could be closed by closer cooperation between the university and the hospital. Before accepting a candidate, is it not feasible for the university to require each applicant to submit plans for further training? To those individuals without definite commitments, a list of possible residencies or preceptorships could be supplied, and the applicant could be urged to complete arrangements for his entire training before entering the course. Each year I see candidates who are nearing the end of their basic instruction before they begin to seek a residency. Invariably they are too late to be considered for the appointment they desire and must spend months waiting for the next vacancy. I believe that if the candidates could be made cognizant of the necessity of planning far in advance, much time would be saved and their economic loss would be reduced materially. If the hospitals requiring such preliminary instruction would make their appointments sufficiently far in advance, the student could map out his entire training before starting the basic course. Ideally, the residency appointment or preceptorship should be obtained prior to the beginning of the instructional period. I realize the difficulties presented by such a proposition, but I feel that some cooperative plan should be devised.

B. Length of Basic Training Period

Some of the courses run an academic year while others are of four months' duration. Some include clinical instruction while others adhere strictly to the basic sciences. There is a difference of opinion on the content of these courses, but if they are primarily for future residents, the material presented should be limited to the basic sciences. If no clinical work were given, their length could be decreased and the incentive to start into unsupervised practice would be curtailed.

C. Shortening the Reidency Program

During the past twenty-five years we have witnessed a lengthening of the time spent in resident training. There can be no question about the improvement in training that has resulted from giving the resident more time to assimilate the problems of ophthalmology, but the quality of training is not necessarily proportionate to the time spent. Those of us who have served on the American Board of Ophthalmology have examined candidates with minimal training requirements who have far surpassed others exposed to years of training, yet these are the exceptions that prove the rule. I do not favor any measure that will reduce to an appreciable extent the time spent in resident training, but if the program is planned carefully several months may be saved. To accomplish this end I suggest that each hospital with a residency in ophthalmology review its training program and eliminate as much of the "scut" work as possible. The resident should have increasing responsibilities throughout his stay, but always under the gui-

dance and supervision of clinicians familiar with all phases of the practice of ophthalmology.

SUMMARY

With our present system of education, shortening the period of training can only be accomplished by (a) combining the premedical and medical courses; (b) integrating the courses in basic instruction into the residency program; (c) elimination of the "scut" work from the residency.

There are disadvantages as well as advantages to all of these short cuts, and a careful balance must be maintained if the training program is not to be weakened.

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THE THREE-YEAR RESIDENCY

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My particular part of this program is to discuss the three-year residency and to evaluate its role in graduate education in ophthalmology. Perhaps I am expected to express an opinion as to whether it is too long, too short, or just right. The same question plagued others a generation or more ago. Back in 1913, Edward Jackson published an article in the *Ophthalmic Record*, reporting a study he had made on how much time a large group of well-known American ophthalmologists of that day had spent in training for their specialty. He listed four different methods of specialty training which these men had used:

1. Special courses given at various eye clinics, often in Europe
2. Assistantship to older, established ophthalmologists
3. Observation in an eye clinic for various periods of time
4. Internship in a special eye hospital, a rare but important method in those days

He found that, although their periods of preparation in one or more of the above ways had varied between six weeks and ten years, the average for this group of ophthalmologists was just about three years.

From Harvard University.

In these days, when formal residency training is considered so necessary, it is interesting to see how it came about. In 1920, the Council on Medical Education and Hospitals, alarmed at the rapid growth of the specialties and the haphazard methods of training then in vogue, recommended that each specialty set up standards of preparation deemed essential to secure expertness in that field. Committees were duly set up in all specialties with the exception of ophthalmology, which several years previously had seen the need for establishing standards of preparation and had already taken definitive action, a fact in which all of us should take pride.

In 1914, committees appointed by our three major ophthalmic societies had recommended that graduate courses be taken amounting to not less than two years of systematic work. Today our American Board of Ophthalmology, which was created by these three societies, requires for admittance to the written examinations not less than three years of combined study, training and practice of ophthalmology. Those who have completed these three years in formal training (residency and basic science courses) may take their written examinations after completion of twelve additional months in practice or institutional work. All others with less formal training must have a total of five years in ophthalmology before applying. Please note that our Board accepts candidates with less formal training than a three-year residency. This is necessary because there are not enough three-year residencies to train all those who go into ophthalmology. Last year, we had in this country ninety-six approved residencies which offered three years of training and fifty-six which offered two years. There were eleven others which gave only one year, and these were only temporarily approved.

It is obvious that more can be accomplished in three years of training than in two years, but the facilities must be good and the teaching of high order. Let us first put down what might be considered the essentials of good graduate training in ophthalmology and then see how they can be carried out by a three-year residency.

As I see it, the aims of an ideal residency program are as follows:

1. To teach the resident the art and practice of caring for the patient with eye disease
2. To ground him in the basic sciences pertaining to ophthalmology
3. To teach him the technical skills in diagnosis and in surgery
4. To expose him to research in ophthalmology and to laboratory techniques
5. To keep him in close touch with general medicine and with neurology
6. To send him out into practice or an academic career a well-rounded ophthalmologist, fully equipped to accept diagnostic and surgical responsibilities, and fully aware of the advances in other fields of medicine and their applicability to his specialty.

Can all this be accomplished in three years? I think it can, provided the selection of residents is good, the clinical material abundant, the visiting staff eager to teach, the basic laboratories and a good library available, and a general teaching hospital nearby with which there is close affiliation. If these facilities do not exist, then the goals probably will not be accomplished.

The method of training will vary considerably in different residencies. In the institution with which I am connected, we prefer to give the basic sciences per-

taining to ophthalmology in concentrated form over a period of five months prior to the clinical residency. Anatomy with orbit dissection, embryology, physiology, pathology, neuro-ophthalmology, optics, biochemistry, and bacteriology are covered by teachers skilled in these fields.

Upon entering his clinical duties, the junior resident devotes most of his time to refraction, perimetry, ocular motility, the performance of laboratory procedures, and minor ophthalmic surgery in the outpatient clinic. Later on he is assigned to the neurological service for three months, where he has an opportunity to see all the ophthalmic manifestations of neurologic disease. Then comes an assignment to the wards of the General Hospital, where all ophthalmic questions are answered.

Another three months are spent in the Eye Pathology Laboratory, where the resident has a chance to help process a number of eyes and correlate pathologic findings with the clinical history.

Still another three months are devoted to the Glaucoma Service, which affords him an opportunity to do gonioscopy, tonography and certain provocative tests. Working concepts in the diagnosis and treatment of all types of glaucoma are acquired during this period.

During the last year of training he spends his time in direct care of patients in the house, as well as working in the Outpatient Department. He performs a large number of major ophthalmic operations under supervision of the visiting staff. He must present interesting cases at the weekly clinical conferences.

During all this period, he must attend biweekly lectures in clinical ophthalmology and certain basic subjects given by staff members. Ward rounds are made by the Chief of Staff once a week, at which all house patients are seen and discussed. This bedside teaching I consider most important. It should be unhurried, and everyone should be given an opportunity to express his opinion.

In outlining the above plan, I do not wish to give the impression that it represents the ideal three-year residency, but it illustrates one method of training young men that has been fairly successful.

What yardsticks can we use to see if our aims are fulfilled by any three-year residency?

1. The American Board of Ophthalmology examinations

2. The accomplishments of the man himself in later life

For several years I was privileged to be the Secretary of the American Board of Ophthalmology and, thus, had an opportunity to form some impressions. By and large, the candidates coming from the three-year residencies did much better in their examinations than those with less training. But there were glaring exceptions. A few men had had only a one-year residency (plus several years of practice) but had made the most of their meager opportunities. They ranked very high in the competitive marks on the written examination and sometimes in the practical part as well. Certain others had spent three years in what are considered first-class residencies but apparently had not used their excellent opportunities to advantage. They did miserably. Such cases were rare, but I cite them to illustrate that a lot depends on the man himself and his eagerness to excel.

In evaluating the time factor in a graduate training program, we must ask ourselves what are we trying to produce? A well-rounded clinical ophthalmologist who will take good care of his patients, or an academician who is going into a career of teaching and investigation?

Obviously, we must have more teachers and investigators, but it is not easy to find and train residents of sufficient caliber. All we can do is to plant the seed and hope that it will fall on fertile ground. Therefore, we must design our three-year residencies not only to turn out well-trained practitioners of ophthalmology but also to stimulate any resident who happens to have the aptitude and potential to pursue an academic career, for which a fourth, or even a fifth, year of additional training may be necessary.

THREE-YEAR RESIDENCY PROGRAM

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WHILE it is not tremendously important, it is still true that of this entire committee on medical education (that is, the Teachers' Section on Ophthalmology) I am the only one whose work in ophthalmic teaching has been confined wholly to postgraduate teaching. This fact may have faults as well as value, but it does permit the expression of an opinion, or opinions. This time includes 38 years of postgraduate teaching.

There is no question whatsoever that the influence of the American Board of Ophthalmology has been a tremendous factor in postgraduate ophthalmic education. This is said with some chagrin, but nevertheless it is true. Organized systematic postgraduate teaching has, however, lagged behind definitely in this relationship of Board influence and Ophthalmology's attempt to improve, to standardize, and to dictate the essentials for satisfactory postgraduate education.

All of us remember well the period during which short courses, plus attendance upon clinics, were the first means toward specialization. That period is long since past. Giants in ophthalmology, however, developed from this.

From the University of Pennsylvania.

Fifteen to twenty years ago, many of our students at the Graduate School of Medicine of the University of Pennsylvania, and from other well organized graduate schools, went from an eight-month academic year directly into private practice. The fortunate individual was that student who could arrange for one or two additional years of instruction as an assistant in the office of an established ophthalmologist. Perhaps even more fortunate was the student who succeeded in obtaining a position as a permanent assistant or associate. At that time one-year residencies in ophthalmic institutes and in general hospitals consisted largely of twelve months in the wards, the clinics and the operating rooms of these institutions, without any systematic training other than that of being told to do this or to do that. Actually the eight-month academic course was preferred by many students to the residency. The one was long on didactic instruction and short on clinical experience, the other quite the opposite—long on clinical contacts with but little organized didactic teaching. Each group, however, soon saw the advantages of the other plan.

Graduate schools, and I speak from my own experience, attempted to accept only those students who would continue their education with a one-year, and later a two-year, residency. At the same time, pure nonteaching institution residencies were increased to two and to three years, and an attempt was made by the staffs of the various institutions to arrange a schedule of lectures. They were still, however, wanting in such important aspects of postgraduate teaching as a laboratory of physical optics with the very necessary optical bench, the dissecting room for anatomy, and laboratory work with tissue, with slides and with the microscope in pathology. Many institutions (you know them as well as I) were not wanting in this aspect of teaching. The chiefs of these institutions realized this and made the necessary arrangements. Many, many others, however, failed entirely in filling this serious deficiency.

I do not believe that the American Board of Ophthalmology ever set itself up deliberately as a group of ophthalmologists to dictate requirements for postgraduate education. In their laudable efforts to certify candidates as safe, qualified, practitioners of ophthalmology, they had to outline minimum requirements. The development of satisfactory curricula followed naturally, and of necessity, thereafter. This situation as it developed over the years was undoubtedly one of the greatest factors in raising postgraduate ophthalmic education to that high plane now present, still improving and still capable of further improvement.

Many years ago, Dr. Robin Burki, then Dean of the Graduate School of Medicine of the University of Pennsylvania, was traveling through some of the European countries investigating their methods for postgraduate and specialty training. This applied not only to ophthalmology, but also to surgery, to internal medicine and, at the time, especially to neurology, then the weak sister of the specialties as to postgraduate training. He came to the conclusion, to which I still subscribe, that the best system for postgraduate specialty education in ophthalmology is, first, a calendar year in General Medicine and Surgery, followed by an academic year in didactic postgraduate lectures, individual work in the dissecting room, in the laboratory of physiological optics, in the laboratory of biochemistry, in a pathology laboratory with tissue work, and in the teaching of physiology upon a graduate level, so that all the basic sicences connected with that specialty would be dealt with one after the other, many subdivisions of this simultaneously, others in logical sequence. Following completion of the work in basic sciences, the clinical work, the experimental work, and the research followed naturally in the wards and the clinics of the allied and the associated hospitals. However, while ideal, this is not always possible. There are not enough graduate school courses and Lancaster-type courses to handle the number of residents necessary. Institutions need faculties of dedicated men teaching without remuneration. Academic courses, these days, cannot be had without high tuition fees. These two essentials cannot be changed; hence, most men studying ophthalmology must use an acceptable residency.

If those studies which have just been detailed are basic requirements, then also it seems that three years in an institution is the least time possible for including didactic lectures, laboratory work, pathology, and an introduction to basic research, clinical or laboratory. That plan is in existence in many institutions, but, as said before, there is a large number of institutions with so-called acceptable residencies lacking these desirable, no, necessary, features.

It is easy, in an institution with more

than four proposed residents as a minimum to divide the services into set periods, such as the refraction room, fields of vision and ocular motility, pathology laboratory, ward rounds, outpatient clinic attendance, associated clinics, junior and senior surgery. This is not as simple when there are fewer residents. That need not make such a residency, that is work in an institution of one or two residents, less satisfactory. It does, however, mean that the chief of the service must, with his associates, give much more time than such a small ophthalmological service might seem to demand. There is no no. 1 man to help out no. 2 in personal instruction, no no. 2 man to instruct no. 3, no no. 3 man to advise no. 4, and so forth.

It is unfortunate that a complete medical education toward certification by a qualifying Board takes such a long time. Medical schools are working on that problem. There may be some relief by rearrangement of the basic undergraduate medical courses, but this is still in the future. It simply means that a residency in some institutions must be preceded by a set academic year in a teaching institution, upon a postgraduate level for the basic ophthalmic sciences. It would be wise for these institutions to select their residents before they ever enter "those portals of clinical learning" to complete that basic course. This plan is to be initiated, not by the postgraduate schools, but by the institutions themselves.

The residency aspect, however, cannot be reduced beyond that recommended herein and considered to be necessary. There are institutions, undoubtedly, so perfectly arranged that a minimum of two years is equivalent to three years in some other institutions. There are, however, very few of these. For the time being the author feels that he has expressed himself unalterably, as just stated, outlining the time necessary and the manner in which this time is to be spent for satisfactory basic postgraduate training. How can a resident in the large general hospitals cover the aspects of ophthalmology and neurology, ophthalmology and internal medicine, ophthalmology and pediatrics, ophthalmology and microscopic pathology, in a period of time less than this. Heaven knows that these associated clinics in an institution devoted solely to the treatment of eyes, under the best of circumstances, barely cover this basic necessity—usually for the two months that the resident is on duty in the associated clinics of that institution. In this aspect the resident in a general hospital has a tremendous advantage if the hospital utilizes the ophthalmic service as it should, and this is not invariable.

It is possible that any of us could theoretically arrange a period of postgraduate training as an ideal. Practically, realistically, that is impossible, however. From my experience in postgraduate education and as a parent who has watched a son complete four years of postgraduate training, internship and residency, I am convinced that it is an impossibility, physically, academically, professionally to reduce the time necessary for graduate study training to less than three calendar years. Even this length of time spent in well organized training is barely sufficient. The basic essentials in addition to a faculty (or staff), laboratories, associated medical and surgical services, and an outpatient department, is time for this and for that, and it cannot be shortened. When a well organized curriculum is wanting for the same length of time, the student reflects the deficiency.

TRANSACTIONS

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THE LISTING OF AUDIOMETERS

Standards for the various types of audiometers are published by the American Standards Association. For a number of years the Council on Physical Medicine and Rehabilitation of the American Medical Association conducted a program of approval of audiometers that met these standards. This activity was discontinued by the American Medical Association in 1955. At the present, there is no authority other than the simple statement of the manufacturer by which the purchaser of an audiometer may know that a given instrument does, in fact, conform to these standards. The acoustic testing and calibration of an audiometer is a difficult technical task, and the users and the manufacturers of audiometers alike agree upon the desirability of testing by an unprejudiced but interested organization. The results of a test should indicate that a given type or model of audiometer conforms to its appropriate standard.

The Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology represents a large group of users of audiometers. It proposes to provide testing of audiometers, and to this end it has appointed a Subcommittee on Listing of Audiometers. The following principles and rules of procedure have been recommended by the Subcommittee and approved by the parent Committee and by the Council of the Academy.

PRINCIPLES

The objective of the procedure is to determine that a given model of audiometer is so designed and constructed that it can be calibrated by its manufacturers to conform to its appropriate standard. The proposed procedure does not provide for any spot checking of production control to assure uniformity of product or calibration.

The Committee on Conservation of Hearing will receive, through the Subcommittee on Listing of Audiometers, audiometers together with the manufacturers' descriptions and calibrations for referral to testing laboratories. At present the following laboratories have been designated to carry out these testing procedures: Central Institute for the Deaf, St. Louis, and Armour Laboratories, Chicago. The Committee on Conservation of Hearing will publish periodically a list of tested audiometers which meet with the appropriate standards.

It is hoped that consultations between the Subcommittee, the manufacturers of audiometers, and the technical personnel of testing laboratories will lead to the continuance and further elevation of the present high technical standards of American audiometers, and to the introduction of new and approved types of instruments. It is implicit in the present proposals that the manufacturers of audiometers will recognize the benefits to themselves of such a system of listing, and will, therefore, pay the fee necessary to secure the services of the testing laboratories.

PLAN FOR LISTING

1. The Committee on Conservation of Hearing, as an agency of the American Academy of Ophthalmology and Otolaryngology, undertakes to report that certain makes and models of audiometers do meet the specifications that have been formulated by the American Standards Association.

2. Neither testing laboratories, as organizations, nor members of their staffs, individually, will be in a position to profit financially from the sale of any commercial audiometers. Although names of testing laboratories are known, it shall not be disclosed to which particular laboratory a given audiometer is submitted, without the consent of the laboratory. It is believed that this feature is essential in order to secure the cooperation of reliable independent laboratories. Manufacturers may, however, communicate directly with the laboratory concerning methods of measurement and equipment employed, but not concerning the measurements made on any particular audiometer, unless this information is volunteered by the laboratory.

3. A manufacturer who desires listing of an audiometer shall pay to the American Academy of Ophthalmology and Otolaryngology a fee sufficient to cover the charge made by the laboratory for its services, plus the shipping charges between the manufacturer, the receiving office designated by the Committee on Conservation of Hearing,* and the testing laboratory.

4. The Subcommittee on Listing of Audiometers will receive a sample audiometer from its manufacturer together with a statement supported by pertinent technical data, showing how the instrument meets the appropriate standards.

5. The Subcommittee on Listing of Audiometers will forward the instrument and the technical data to a laboratory for testing according to the adopted testing procedure. The laboratory will prepare a report on the instrument and will forward this report to the Subcommittee on Listing of Audiometers.

6. The Subcommittee on Listing of Audiometers will decide whether the data furnished by the laboratory justify the listing of the audiometer. If the decision is affirmative, the Committee on Conservation of Hearing will, with additional reviews and/or comment as may be specified by the Council of the American Academy of Ophthalmology and Otolaryngology, publish the listing in the TRANSACTIONS of the Academy and in such other avenues of publication as it deems appropriate. A copy of the laboratory's technical report will be forwarded to the manufacturer by the Subcommittee on Listing of Audiometers.

7. If the Subcommittee on Listing of Audiometers decides that the data submitted by the testing laboratory do not justify the listing of an audiometer, the Subcommittee on Listing of Audiometers will so inform the manufacturer, giving the technical data to support its refusal. If the manufacturer, on the ba-

*Office of the Secretary of the American Academy of Ophthalmology and Otolaryngology, William L. Benedict, M.D., 15 Second St. S.W., Rochester, Minn.

sis of an adverse report, revises the instrument to bring it into conformity with the appropriate standard, the Subcommittee on Listing of Audiometers may, at its discretion, authorize an abbreviated series of tests or examinations confined to the feature at fault at a reduced fee. Such a second review may be made by the same or by another laboratory.

8. If a manufacturer refuses to accept the reason for refusal for listing of his instrument, he may request independent tests by a second referee laboratory. The additional costs will be borne by the manufacturer. In the event that no final agreement can be reached, the Subcommittee may refer the entire matter to the National Bureau of Standards for a decision.

9. The listing of a particular model of any audiometer will expire three years from the date that the Subcommittee on Listing of Audiometers notifies the manufacturer of the listing. The Subcommittee will require a retesting every three years for continued listing of any particular model of an audiometer.

10. The American Academy of Ophthalmology and Otolaryngology will accept for exhibits under its auspices or accept for advertisement in the TRANSACTIONS those models of audiometers that have been accepted for listing by the Subcommittee on Listing of Audiometers. A new model of audiometer made by a manufacturer for whom a previous model has been listed will be accepted for exhibition if a sample of the new model with the required data has been received by the Subcommittee on Listing of Audiometers.

11. Manufacturers may state in advertisements and in descriptive circulars, "This model has been listed by the American Academy of Ophthalmology and Otolaryngology as meeting the appropriate standards of the American Standards Association."

SUBCOMMITTEE ON LISTING OF AUDIOMETERS, COMMITTEE ON CONSERVATION OF HEARING

THE FRIEDENWALD LECTURESHIP

The Friedenwald Lectureship has been established under the auspices of the Association for Research in Ophthalmology as a memorial to Dr. Jonas S. Friedenwald. The first lecture was given by Dr. John E. Harris at the 1957 meeting of the Association. Recently it has been announced that Dr. Bernard Becker will give the Friedenwald Lecture for 1958. The Friedenwald Lecture will be the highlight of the annual session of the Association for Research in Ophthalmology.

Almost immediately after the death of Dr. Friedenwald the trustees of the Association for Research in Ophthalmology appointed an ad hoc committee to plan a suitable memorial for him. A number of different means of honoring Dr. Friedenwald's memory were considered. The Committee thought, considering Dr. Friedenwald's interests and ideals, that an award to encourage and recognize research activity by young investigators would best perpetuate his memory. Rather than serving the function of an additional award for established investigators, as does the Proctor Medal of the Association, emphasis will be placed on those who have received less recognition and whose contributions are current. Recipients will be invited to present a lecture on any phase of ophthalmic research at the annual meeting of the Association. A stipend of $500 will be awarded the recipient.

Almost immediately after the appointment of the Committee, a number of Dr.

Friedenwald's friends and associates sent contributions to start a Friedenwald Memorial Fund under the auspices of the same Committee. The family of Dr. Friedenwald also contributed most generously to the fund. At no time has there been a public request for contributions. This fund has now been turned over to the Trustees of the Association for Research in Ophthalmology as a permanent endowment fund for the Friedenwald Lectureship. Further contributions to the fund are necessary if it is to carry out this function adequately. All those interested in perpetuating the memory of a great ophthalmologist whose contributions are so important to all ophthalmologists are invited and urged to send contributions to this fund. They may be sent to the Secretary of the Association for Research in Ophthalmology, Lorand V. Johnson, M.D., 10515 Carnegie Ave., Cleveland.

Suggestions for possible candidates for the awards would be welcomed by the trustees. These may also be sent to Dr. Johnson.

HOME STUDY COURSES

Secretary: DANIEL SNYDACKER

Associate Secretary: BEN H. SENTURIA

OPHTHALMOLOGY

MONTH AND SUBJECT	FACULTY
September EMBRYOLOGY, ANATOMY AND NEURO-ANATOMY	John W. Henderson M. Noel Stow
October PHYSIOLOGY	Irving H. Leopold Robison D. Harley
November OPTICS AND PRINCIPLES OF BIOMICROSCOPY	Edwin F. Tait Bourne Jerome
December REFRACTION	Manuel L. Stillerman Bernard C. Gettes
January OCULAR MICRO-BIOLOGY, EXTERNAL DISEASES, AND ASEPTIC TECHNIQUE	Henry F. Allen Samuel J. Kimura
February PERIMETRY AND NEURO-OPHTHALMOLOGY	Robert W. Hollenhorst Edward W. D. Norton John P. Wendland
March EXTRAOCULAR MUSCLES	Hunter H. Romaine Hermann M. Burian
April OPHTHALMOSCOPY AND MEDICAL OPHTHALMOLOGY	Banks Anderson Frank C. Winter
May PATHOLOGY	John S. McGavic Joseph A. C. Wadsworth
June PHARMACOLOGY AND THERAPEUTICS	Alfred J. Kreft Andrew de Roetth, Jr. John E. Harris

CONSULTANTS:

James H. Allen, Conrad Berens, Frederick C. Cordes, Hendrie W. Grant, George P. Guibor, Michael J. Hogan, S. Rodman Irvine, Samuel N. Key, Jr., P. J. Leinfelder, Cecil W. Lepard, Arthur Linksz, John P. Macnie, Paul T. McAlpine, Raymond E. Meek, Frank W. Newell, C. Wilbur Rucker, Kenneth C. Swan, Georgiana Theobald.

OTOLARYNGOLOGY

MONTH AND SUBJECT	FACULTY
September ANATOMY I	Peter N. Pastore Walter P. Covell Bruce Proctor
October ANATOMY II	Peter N. Pastore Walter P. Covell Bruce Proctor
November HISTOLOGY	Leland G. Hunnicutt Frederic J. Pollock
December PATHOLOGY	George F. Reed Norman Jesberg Joseph H. Ogura
January PHYSIOLOGY	Harold F. Schuknecht Hollie E. McHugh
February MICROBIOLOGY	James W. McLaurin Joseph L. Goldman
March PHARMACOLOGY	G. O. Proud Kinsey M. Simonton
April HEARING FUNCTION AND TESTING	Victor Goodhill Aram Glorig
May VESTIBULAR FUNCTION AND TESTING	David D. DeWeese Edwin A. Stuart
June OTOLOGICAL ACOUSTICS	Donald H. Eldredge Juergen Tonndorf

CONSULTANTS:

H. C. Ballenger, L. W. Dean, Jr., J. Brown Farrior, A. C. Hilding, Arthur L. Juers, Clair M. Kos, Clifford F. Lake, John R. Lindsay, Moses H. Lurie, Carl H. McCaskey, William J. McNally, Werner Mueller, Jack E. Mulsow, Robert E. Priest, Scott N. Reger, Herman Semenov, G. E. Shambaugh, Jr., Maurice F. Snitman, William C. Thornell, O. E. Van Alyea, Theodore E. Walsh, Henry L. Williams.

The Courses begin on September 1 each year and run continuously for ten months.

Application blanks may be secured from the Executive Secretary-Treasurer of the Academy: Dr. William L. Benedict, 15 Second Street S.W., Rochester, Minnesota.

In Memoriam

Harry Francis Byrnes.....Springfield, Massachusetts
January 2, 1958

Howard Daniel Fellows.....Mason City, Iowa
December 27, 1957

Maxwell Fineberg.....St. Louis, Missouri
March 8, 1958

Alfred W. Haskell.....Portland, Maine
November 28, 1957

Jesse Reeves Hurst.....Longview, Texas
December 7, 1957

Wayland Hoyt Maloy.....Shenandoah, Iowa
December 26, 1957

Frederick Merrifield.....Wilmette, Illinois
January 6, 1958

William F. Molt.....Indianapolis, Indiana
January 12, 1958

David Jacob Morgenstern.....Brooklyn, New York
February 12, 1958

Edmonde DeWitt Neer.....New York, New York
December 6, 1957

Carl M. Oberg.....Minneapolis, Minnesota
February 6, 1958

Morris Muncie Rossman.....Freeport, New York
February 3, 1958

Relza Newton Sherman.....Bradenton Beach, Florida
January 16, 1958

William Steinman.....Miami, Florida
February 10, 1958

Francis W. Thomas.....Columbus, Ohio
February 18, 1958

Henry Eagle Thomason.....Summers, Arkansas
December 10, 1957

Oscar Lloyd Veach.....Sheridan, Wyoming
November 10, 1957

Doris S. Woolsey.....St. Louis, Missouri
February 13, 1958

William Zentmayer.....Merion Station, Pennsylvania
March 18, 1958

INTERNATIONAL ASSOCIATION OF SECRETARIES OF OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETIES

XVIII International Congress of Ophthalmology

The XVIII International Congress of Ophthalmology will be held in Brussels, Belgium, September 8-12, 1958.

The International Association of Secretaries of Ophthalmological and Otolaryngological Societies has made arrangements with secretaries of ophthalmological organizations throughout the world to meet with us. All of the secretaries of such organizations have been invited, whether members of our Association or not. There will be a Hospitality Lounge, get-togethers, and probably a dinner preceded by a cocktail party.

Tenure of Office of a Secretary

At the 1957 meeting of the International Association of Secretaries of Ophthalmological and Otolaryngological Societies, I was surprised and perplexed to learn that the term of office for a number of the secretaries is relatively brief. Some are serving for one year only. When this Society was founded, in 1939, as the "American Association of Eye, Ear, Nose and Throat Society Secretaries," one of its first and foremost decisions was to recommend that a good secretary be retained in office *for an indeterminate and unlimited period of time.* "Keep a good secretary in office as long as he will accept the job," was the recommendation heard over and over again at our early meetings, and this expression could well have been an appropriate theme song of the organization.

What has happened in some societies in more recent years to bring about disagreement with this earlier viewpoint? Is the concept wrong; is it too "old-fashioned"? Personally, I feel that the idea is right. Under present-day conditions it may be even more important than formerly to retain a first-class secretary in office as long as he continues to function efficiently and accepts the responsibility.

Some secretaries may feel that their obligations are fulfilled by merely recording the minutes of the meeting. A good secretary, however, finds many ways in which he can be of help to his society. He is the key man of his group and the success of the organization depends largely upon his individual efforts. Show me a flourishing enthusiastic society, with good programs, good attendance and friendly harmonious relations among its members, and I will show you a topnotch A-1 secretary. He does not reach this pinnacle, however, in the brief span of one or two year's service but as a result of the valuable training and experience gained in long-time devoted application to the job.

To stress the importance of long tenure of office for secretaries, I would like to mention a few outstanding societies which have recognized the merit of this principle. The International Association of Secretaries of Ophthalmological and Otolaryngological Societies, itself, has had only three secretaries throughout its lifetime of eighteen years. The current secretary, Dr. Edley H. Jones, has held office for three years, and it is hoped that he will continue to serve for many years to come. Dr. Jones also has been secretary of the

Louisiana-Mississippi Ophthalmological and Otolaryngological Society for twenty-one years. The largest and one of the finest organizations of its kind is the Pennsylvania Academy of Ophthalmology and Otolaryngology, sometimes referred to as the Little American Academy. In its fifteen years of existence it has had only three secretaries. Its present secretary, Dr. Daniel S. De Stio, is now entering his eighth year of office. The Kansas City Eye, Ear, Nose and Throat Society keeps its secretaries in office for at least five years. Dr. James T. Robinson is the present incumbent. Dr. Sam H. Sanders was secretary of the Memphis Eye, Ear, Nose and Throat Society for sixteen years and of the Tennessee Society for eight years. The St. Louis Ear, Nose and Throat Club has retained in office its present secretary, Dr. Harry N. Glick, for the past ten years. Dr. Joseph Weintraub has been secretary of the Cincinnati Ophthalmological Society for eleven years. This group follows the policy of many French societies, which have permanent secretaries, or "secretaires perpetuelles," thus going us one better in our doctrine of long tenure.

In organizations of national scope, Dr. Walter H. Theobald served as secretary of the Middle Section of the Triological Society for over twenty years, and Dr. C. Stewart Nash has been national secretary since 1936. Dr. Hugh A. Kuhn now is in his second successive three-year term as secretary of the Section on Laryngology, Otology and Rhinology of the American Medical Association. Dr. Kuhn is the first secretary of this section who has held office for more than one term.

It is the custom in some societies to interrupt the secretary's term of office after a period of meritorious service to honor him with the presidency for a year and then to return him to the secretary's office. This is an excellent idea. However, even the best of secretaries cannot hold office forever. How, then, can the benefit of his wisdom and experience, acquired over the years, be utilized by the society upon his ultimate retirement? A number of societies prepare for a change in secretaries a year ahead of time. The one who succeeds to the office is chosen in advance and serves for a year as assistant secretary. He helps in all the routine work, sits in on committee meetings, and performs certain assigned duties under supervision. Thus he gains valuable insight into the operating machinery of the organization and at the end of his apprenticeship has been well trained and conditioned to take over the full responsibility of the office. Many societies are adopting this excellent policy.

Each of the societies named is a successful progressive organization noted for good programs, good attendance, good fellowship and various specially planned activities, all of which bind the members into a closely knit, enthusiastic unit. These features spell *success* in any organized group, and the success of each of these societies largely has been due to the fine work of its secretary. Many other such examples could be cited. The point to be emphasized is that all of the secretaries mentioned have held office year after year after year. As the experience and the efficiency of the secretary grow with his years of service, so grows and flourishes his society. A secretary cannot reach nor even approach the full stature and potential of his office in the limited span of one or two years. I still hold with the original theme of the International Association of Secretaries of Ophthalmological and Otolaryngological Societies, "When you get a good secretary keep him in office as long as he is willing to serve," with the added personal thought

that an attempt then should be made to persuade or browbeat him *into serving longer.*

KENNETH L. CRAFT, M.D.*

Evaluation of Instruction

In attempting to obtain evaluation sheets of the Academy meeting I received a number of comments resulting in conclusions which should be of interest to everyone.

Some remarks indicated that very few physicians are willing to give honest-to-goodness evaluations. This must mean one or the other of two things, neither of them good. It may mean lack of interest in the Academy courses; or else it may indicate boredom and disappointment with the courses taken.

In general the comments could be classed as favorable or unfavorable. By and large, the majority of the comments were favorable. However distasteful criticism may be, we can learn from the unfavorable comments. These criticisms fell into the two categories of poor material and poor presentation. In the first instance the speaker was an able teacher and presented his material with enthusiasm and excellent organization but he did not have much meat in his course. In the second instance the material was there asking for stimulating interest but the speaker presented it so poorly, so monotonously, with no visual aids, with inadequate preparation, so that his hearers soon lost interest or missed an opportunity to improve themselves and to add to their knowledge.

We ophthalmologists and otolaryngologists know that we need to study continuously, that we must take frequent refresher courses in order to keep abreast of the tide. It would therefore be a misfortune for us to lose the great potential source of information the Academy courses provide through negligence on the part of the teachers; and I cannot avoid using this strong term.

The comments made rather definite and quite positive suggestions to the instructors. Could our instructors perhaps take an active interest in public speaking? Could they present themselves to their audience as enthusiastic, well prepared individuals with information to impart which is of vital and immediate concern to their students? Would it be advisable to set aside part of each hour for discussion? Or a question-and-answer period?

To help the teacher to evaluate himself he might give each member of his class a short evaluation sheet or questionnaire to be completed and returned to him at the end of the instruction period. Such a sheet or card would have to be worded appropriately for this purpose. Therefore, careful thought should be given to its composition. More replies might be returned if it were in the form of a check sheet rather than something demanding articulated opinion.

Now as to us folks who sit in the chairs — the listeners. We rarely profit from a course unless we are motivated and have become activated. I mean by this that the highest degree of learning can be achieved only in a course when the listener is genuinely interested, when he wants to advance himself in the subject presented, and when he takes an active part in the discussion. Ideally he should come to the course well prepared, with his thoughts concentrated on the matter at hand, and fortified by considerable advance study.

The Academy courses are a wonderful source of help to practicing ophthal-

*Dr. Craft is a charter member, a Past-President, and the *first* Secretary of the society now known as the International Association of Secretaries of Ophthalmological and Otolaryngological Societies.

mologists and otolaryngologists. If they are of current interest and well conducted, they will have the whole-hearted participation of the Fellows of the Academy. If they are constantly improved by means of evaluation and preparation, everyone will be the better for it. Such a project will require the active participation of our entire membership, not just of the devoted few who now give freely of their time and knowledge as instructors.

The secretaries of the various state and regional societies would welcome joint interest in this matter. Could the Council of the International Association of Secretaries of Ophthalmological and Otolaryngological Societies meet with the Secretaries of Instruction of the American Academy of Ophthalmology and Otolaryngology for a give-and-take discussion concerned with our Instructional Courses?

J. David Stratton, M.D.

TRANSACTIONS
of the
AMERICAN ACADEMY OF
OPHTHALMOLOGY AND OTOLARYNGOLOGY

Vol. 61 — 1957

Bound Volume now ready. Price $5.00

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
15 Second St. S. W., Rochester, Minn.

SECTION ON INSTRUCTION

SIXTY-THIRD ANNUAL MEETING

American Academy of Ophthalmology and Otolaryngology

October 12-16, 1958

PALMER HOUSE

Chicago, Illinois

A. D. RUEDEMANN, M.D.
Secretary for Instruction — Ophthalmology

DEAN M. LIERLE, M.D.
Secretary for Instruction — Otolaryngology and Maxillofacial Surgery

This Section presents for 1958:

Ophthalmology: 145 Individual Courses; 53 Continuous Courses. The faculty is comprised of 245 instructors, and the hours of instruction total 373.

Otolaryngology: 121 Individual Courses; 26 Continuous Courses and Panel Discussions. The faculty is comprised of 149 instructors and the total number of instruction hours is 216.

General Instructions

Only members who have paid their 1958 dues may order instruction tickets in advance of the meeting. Members should order tickets only for their own use. *Candidates for fellowship in the Academy are not privileged to reserve tickets in advance.* After the session opens, no distinction between members, candidates and guests will be made in selling tickets.

Each period (1 hour) of instruction costs $2.00. *Orders unaccompanied by properly executed checks will not be filled.* Checks should be made payable to W. L. Benedict, M.D.

In case of inability to attend the meeting after order has been filled, a refund will be granted if requested prior to October 10.

If courses requested are not available and it is impossible to substitute, a refund will be granted. Refunds will not be sent by mail. A blue refund card will be placed in the Advance Registration Envelope which is received at the time of registration. This should be presented at the Instruction Desk for payment.

All orders for tickets will be filled according to postmark on envelope containing check. Telegrams will not be honored. Orders will not be accepted for presale after October 2. To ensure acceptance they should be mailed by September 30 to William L. Benedict, M.D., 15 Second Street S.W., Rochester, Minnesota.

Ordering Instruction Tickets

An *individual* course is complete in one (1) period. Most individual courses are repeated on two different days, allowing the subscriber to choose the day on which he wishes to attend.

A *continuous* course runs two (2) or more periods as indicated. It is not possible to purchase a ticket to only *part* of a continuous course.

At the end of this section is printed a colored sheet to be used when ordering tickets in advance. Specify preferences on this sheet and mail to the executive office. Careful attention to instructions will ensure the correct filling of your requests. *Since number of tickets for each course is limited, be sure to list second and third choices for each period in case first choice is already sold out. In every case, effort will be made to furnish first choices.*

If you are requesting registration in the continuous courses, please specify preferences for individual courses as substitutes in order to avoid disappointment should the continuous courses which you select be sold out when your order is received.

Acknowledgment of Advance Order

As soon as an advance order is filled, a postcard, listing the courses that have been reserved for him, will be mailed to the subscriber. Please do not ask to change courses after your order has been filled. The postcard is merely an assurance that your order has been filled; it is not necessary for registration at the Academy meeting.

Claiming Instruction Tickets

No tickets will be sent through the mails. Members who have ordered instruction course tickets will register at the *Advance Order Section* of the Registration Desk during the week of the Convention to secure registration badge, tickets, and all convention material.

Tickets will be on sale during the meeting at the Instruction Desk in the Registration Foyer.

If you have ordered tickets in advance, at the time of registration take your registration card to the desk marked ADVANCED ORDERS. There you will be given an envelope containing badge, tickets and program which has been prepared ahead of time to facilitate your registration.

KEY TO DESIGNATION OF PERIODS

The periods will be designated with the following key: Select tickets for — Otolaryngology, forenoons, periods 1-2-3 — Ophthalmology, afternoons, periods 4-5-6

Day	(M)onday	(T)uesday	(W)ednesday	(Th)ursday
Period a.m.		1 2 3	1 2 3	1 2 3
Period p.m.	4 5 6	4 5 6	4 5 6	4 5 6

M-4	2:00 p.m. to 3:00 p.m.	W-4	2:00 p.m. to 3:00 p.m.
M-5	3:15 p.m. to 4:15 p.m.	W-5	3:15 p.m. to 4:15 p.m.
M-6	4:30 p.m. to 5:30 p.m.	W-6	4:30 p.m. to 5:30 p.m.
T-1	9:00 a.m. to 10:00 a.m.	Th-1	9:00 a.m. to 10:00 a.m.
T-2	10:15 a.m. to 11:15 a.m.	Th-2	10:15 a.m. to 11:15 a.m.
T-3	11:30 a.m. to 12:30 p.m.	Th-3	11:30 a.m. to 12:30 p.m.
T-4	2:00 p.m. to 3:00 p.m.	Th-4	2:00 p.m. to 3:00 p.m.
T-5	3:15 p.m. to 4:15 p.m.	Th-5	3:15 p.m. to 4:15 p.m.
T-6	4:30 p.m. to 5:30 p.m.	Th-6	4:30 p.m. to 5:30 p.m.
W-1	9:00 a.m. to 10:00 a.m.		
W-2	10:15 a.m. to 11:15 a.m.		
W-3	11:30 a.m. to 12:30 p.m.		

(Familiarity with this key will be helpful and will avoid confusion)

1958

CONTINUOUS COURSES — OPHTHALMOLOGY

COURSE 1

Room 738 Periods M-4, M-5, T-4, T-5, W-4, W-5, Th-4, Th-5

JAMES H. ALLEN, M.D., et al.

Bacteriology and Infectious Diseases

An eight-period course—$16.00

The first hour of the course will be devoted to bacteriology and methods of etiologic diagnosis of infectious diseases. Six hours will be devoted to the clinical manifestations and differential diagnosis of infectious and allergic diseases of the eye, and one hour will be devoted to a general summary of the therapy of infectious diseases.

M-4—Bacteriology

James H. Allen, M.D.
New Orleans

M-5—Infections of the Lids and Lacrimal Apparatus

Hugh Ormsby, M.D.
Toronto, Ont., Canada

T-4—Bacterial Infections of the Conjunctiva

Isadore Givner, M.D.
New York

T-5—Allergic Diseases of the Lids, Conjunctiva, and Cornea

Frederick H. Theodore, M.D.
New York

W-4—Infectious Diseases of the Cornea

Henry F. Allen, M.D.
Boston

W-5—Virus Infections of the Lids and Conjunctiva

Samuel J. Kimura, M.D.
Berkeley, Calif.

Th-4—Infections of the Orbit and Globe (to include surgical infections)

Gustav Bahn, M.D.
New Orleans

Th-5—Therapy of Infectious Diseases

Alson E. Braley, M.D.
Iowa City, Iowa

COURSE 2

Room 713 Periods M-4, M-5

KARL W. ASCHER, M.D.
Cincinnati

Aqueous Veins in Glaucoma

A two-period course—$4.00

The aqueous veins are biomicroscopically visible pathways similar to blood vessels in appearance, containing clear, colorless fluid or diluted blood or both, and intercalated, via Schlemm's canal, between intraocular fluid and conjunctival or episcleral veins.

The detection, in 1941, of the aqueous veins confirmed the presence of a continuous elimination—and therefore production—of aqueous humor, resolving a controversy of decades and opening up new approaches to glaucoma research. The physiologic implications of these structures have been verified by numerous investigators in studies on man and animals. The control of flow appears to reside within the roots of the aqueous veins, deep in the scleral tissue, with a regulating center which is probably located in the diencephalohypophyseal area.

The qualities of the aqueous veins and their bearing on the retention theory and the neurovascular theory of glaucoma will be discussed. A motion picture will be shown.

COURSE 3

Room 721 Periods M-5, M-6

ELMER J. BALLINTINE, M.D.
and
E. PURNELL, M.D.
BY INVITATION
Cleveland

Clinical Tonography

A two-period course—$4.00

The value of tonography as a practical clinical office procedure in the management of glaucoma has been established.

The clinical procedure and the more common sources of errors will be demonstrated in a motion picture and discussed in sufficient detail that the observers will be able to perform the test or instruct their technicians in the procedure.

Most of the time will be spent in interpretation and discussion of tonographic data obtained in the following clinical situations:

1. Early diagnosis of glaucoma
2. Refinement of provocative tests
3. Anticipation of failure of medical therapy before field loss occurs
4. Anticipation of failure of previously successful antiglaucoma surgery
5. "Low-tension glaucoma" as a result of
   (a) decreased scleral rigidity
   (b) "arrested" glaucoma
   (c) cavernous atrophy of the nerve and related concepts

COURSE 4

Room 713 Period T-4, T-5

BERNARD BECKER, M.D.
St. Louis
and
V. EVERETT KINSEY, Ph.D
Detroit
BY INVITATION

Studies of Aqueous Flow

A two-period course—$4.00

Current concepts of the composition of the aqueous humor and the manner of its formation will be presented.

The rate of aqueous secretion will be discussed from the point of view of methods of measurement and induced alterations.

COURSE 5

Room 738 Periods M-6, T-6, W-6

ARTHUR J. BEDELL, M.D.
Albany, N. Y.

Ophthalmoscopy

A three-period course—$6.00

Kodachrome demonstrations with hundreds of photographs in a comprehensive review.

Normal variations, anomalies and unique patterns.

Circulatory alterations including sudden arterial or venal occlusions with serial studies. The retinopathy found in diabetes, the hypertensive state, and arteriosclerosis. The blood dyscrasias, tuberculosis and syphilis.

The optic nerve diseases; emphasis on the differentiation between edema, choked disc, infection, and optic neuritis.

Senile macular degeneration from the earliest signs to terminal scars.

COURSE 6

Room 702 Periods M-5, M-6

PAUL BOEDER, Ph.D.
Iowa City

Practical Optics

A two-period course—$4.00

The optical properties and practical aspects of single vision and contact lenses as well as of all types of multifocal lenses will be discussed: in particular, their defects and prismatic effects, such as object displacement, image jump, vertical imbalances, and decentration. This will be followed by a discussion of cataract and telescopic lenses, and finally, by a review of the optical principles of retinoscopy, and direct and indirect ophthalmoscopy.

COURSE 7

Room 713 Periods W-5, W-6

ALSON E. BRALEY, M.D.
Iowa City

Fundus Lesions: Diagnosis with Slit Lamp

A two-period course—$4.00

COURSE 8

Room 710 Periods W-4, W-5

GOODWIN M. BREININ, M.D.
New York

Electromyography

A two-period course—$4.00

The principles of electrophysiologic instrumentation as applied to electromyography of the extraocular muscles and to electro-oculography will be described, and the theory and application of these techniques discussed.

There will be a brief review of neuromuscular conduction. Illustrative slides and tracings will be shown of both normal and abnormal conditions involving

ocular motility: comitant and paretic strabismus, ptosis, myopathies and nystagmus.

COURSE 9

Room 721 Periods T-5, T-6

ROBERT J. BROCKHURST, M.D.
Boston
BY INVITATION

Indirect Ophthalmoscopy

A two-period course—$4.00

Direct and indirect ophthalmoscopy will be compared, and the technique of indirect ophthalmoscopy described with the aid of a short motion picture in color.

The advantages of indirect ophthalmoscopy in the study of the extreme fundus periphery will be demonstrated with slides of fundus paintings of such conditions as retinal detachment, retinoschisis, retinal cysts, neoplasms, uveitis, and intraocular foreign bodies.

This method of ophthalmoscopy will be discussed in relation to the surgical treatment of retinal detachment, certain types of small intraocular tumors, and intraocular foreign bodies.

COURSE 10

Room 795 Periods M-4, M-5, T-4 T-5, W-4, W-5, Th-4, Th-5

HAROLD W. BROWN, M.D., et al.

Eye Muscles

An eight-period course—$16.00

M-4 & 5—Physiology and Pathology of the Ocular Muscles
Harold W. Brown, M.D.
New York

The physiologic action of the individual muscles in conjugate and disjunctive movements (convergence, divergence) will be discussed and illustrated. From these normal physiologic acts, the pathologic variations will be developed and classified. Various methods of diagnosis, measurement of deviations and the surgical and nonsurgical correction of these deviations will be presented.

T-4 & 5—Congenital Anomalies
Rudolf Aebli, M.D.
New York

The subject matter will cover the more usual congenital anomalies such as retraction syndrome and its variations, strabismus fixus, Marcus Gunn jaw-winking syndrome, paralyses of both elevators of one eye with true ptosis and pseudoptosis, and also congenital individual muscle anomalies. Differential diagnosis and treatment, if any, will be discussed.

W-4—Tests
Paul T. McAlpine, M.D.
Summit, N. J.

Tests in common use will be briefly described and the relative merits discussed. Emphasis will be placed on the screen cover test and its modifications. A practical routine muscle test will be outlined, and the technique of the various procedures will be described in detail.

W-5—Surgical Techniques in the Management of Motor Anomalies
Paul T. McAlpine, M.D.

The anatomy of the extraocular muscles with their fascial attachments will be briefly discussed. Techniques of the various operations on the extraocular muscles will be presented in detail.

Th-4 & 5—Surgery of the Extraocular Muscles
Harold W. Brown, M.D.
Rudolf Aebli, M.D.

The indications and contraindications for surgical correction of heterophoria and heterotropia will be discussed. Special emphasis will be placed on the methods used in selecting the proper muscle or muscles for operation and the amount of correction that can be expected from the different types of surgical procedures.

COURSE 11

Room 715 Periods T-5, T-6

VICTOR A. BYRNES, M.D.
Washington, D. C.

Ophthalmic Filters

A two-period course—$4.00

In prescribing sunglasses or tinted lenses the following factors should be considered:

a. In what kind of light will these filters be used?
b. What effects do these light wavelengths have on the eye if unfiltered?
c. What effects do the various filters have on the light distribution?

d. What is the effect on vision of the changes in the light reaching the eye?

These factors will be discussed. Other topics for discussion will include sunglasses of different shades and the advantages and disadvantages of each; tinted lenses for constant wear; types of tinted lenses advocated for night driving and their defects; tinted windshields and their transmission curves, uses and disadvantages; reflecting filters and their uses; relative merits of glass and plastic lenses; use of sunglasses with corrections for refractive errors; strength of corrections which can be ground in large-size sunglass lenses; polarizing lenses; shooting glasses; defects of clip-on lenses; filters for possible use in prevention of intraocular damage by atomic flash and other high intensity radiation.

COURSE 12

Room 752 — Periods M-5, M-6, T-5, T-6, W-5, W-6, Th-5, Th-6

ALSTON CALLAHAN, M.D., et al.

Ophthalmic Plastic Surgery Advanced

An eight-period course—$16.00

Planned for ophthalmologists who have had moderate experience with lid surgery, this course is designed to teach the ophthalmic plastic surgeons to correct major lid problems. Since it is integrated with the Fundamental Course given by Dr. Wendell Hughes et al., beginners in Ophthalmic Plastic Surgery should complete his course before taking this one.

M-5—Advanced conjunctival problems—burns, mucosal grafts, forniceal reconstruction, recurrent pterygia. Abrasive treatment of scars of skin

Byron Smith, M.D.
New York

M-6—Etiology and treatment of acquired ectropion, entropion, and trichiasis. Most effective surgical procedure

Sidney A. Fox, M.D.
New York

T-5—Orbital fractures, immediate treatment, and complications accompanying late repair; major orbitotomies; and correction of late orbital complications after enucleations

Edmund B. Spaeth, M.D.
Philadelphia

T-6—Severe problems of the lacrimal drainage apparatus. Malignant lesions. Correction of destroyed canaliculi and sac. Emplacement of silicone-treated vinyl tube

Alston Callahan, M.D.
Birmingham, Ala.

W-5—Congenital anomalies of the lids, various manifestations. Corrective procedures for blepharoptosis

Merrill Reeh, M.D.
Portland, Ore.

W-6—Reconstruction, partial and complete, of the lower lid and repair of the canthal ligaments

J. Gordon Cole, M.D.
New York

Th-5—Total and subtotal reconstruction of the lids

Alston Callahan, M.D.

Th-6—Questions on lectures. Motion pictures. Individual consideration of problem patients of the student physicians

Panel of Instructors

COURSE 13

Room 721 — Periods M-4, T-4, W-4

GRAHAM CLARK, M.D.
New York

Retinal Detachment

A three-period course—$6.00

The following outline will be utilized:

I. Types of retinal detachment and their holes: causative mechanisms, surgical approach, and prognostic significance

II. Treatment of the simple detachment, with emphasis on the electrical principles involved in the use of diathermy

III. Treatment of complicated detachments, with discussion of the various procedures for shortening the sclera

COURSE 14

Room 702 Period T-5, T-6

EDMOND L. COOPER, M.D.
Detroit

Principles of Muscle Surgery

A two-period course—$4.00

The aim of muscle surgery is to align the visual axes. In cases in which a functional result can be expected, an operation should be considered only as a supplement to optical and orthoptic treatment, but alignment must be attained if binocular vision is to be the end result. In cases in which only a cosmetic result can be expected, alignment is none the less important.

It is the purpose of this course to explain the principles which enable us to obtain the proper alignment of the visual axes. Included among these principles are (1) proper diagnosis; (2) early operation; (3) influence of prognosis; (4) preoperative planning of amount of surgical correction to attempt and how this is determined; (5) technique.

Since the results of surgical procedures on the ocular muscles are hard to predict, the ophthalmic surgeon may sometimes find that the result of an operation is overcorrection of the deviation. During the second hour of this course, the proper method of treatment in such cases will be considered.

COURSE 15

Room 782 Periods M-4, M-5, T-4, T-5

COURSE 16

Room 782 Periods W-4, W-5, Th-4, Th-5

JACK C. COPELAND
Chicago

Streak Retinoscopy

A four-period course—$8.00

This four-hour course is being presented twice, as Course 15 on Monday and Tuesday and as Course 16 on Wednesday and Thursday. **Please select course number according to days on which you wish to attend.**

The following outline describes the steps of the demonstration:

1. Determining the neutral point
2. Revealing low astigmatic errors
3. Locating the zone of the astigmatic band
4. Determining the power of the cylinder
5. Estimating the type and degree of error without lenses
6. Refining axis position by "Guide Angle" technique
7. Plus cylinder procedure

COURSE 17

Room 731 Period M-4, M-5

FRANK D. COSTENBADER, M.D.
Washington, D. C.

Muscle Problems

A two-period course—$4.00

This course will consist of informal discussion of specific "problem" cases. No formal lecture is anticipated.

Registrants for the course will be encouraged to submit in writing, by mail, a detailed description of cases they wish discussed. As much of the etiology, diagnosis, and treatment of these cases will be discussed as time permits.

COURSE 18

Room 744 Period T-4, T-5

FRANK D. COSTENBADER, M.D.
G. VICTOR SIMPSON, M.D.
Washington, D. C.

Probing of the Nasolacrimal Duct in the Infant and Adult: Indications and Technique

A two-period course—$4.00

The aim of this course is to review the developmental and adult anatomy of the nasolacrimal apparatus, and to discuss the course and management of nasolacrimal obstruction in the infant and adult. Especial emphasis will be placed on the technique of probing.

The subject will be discussed under the following headings:

1. Function of tears
2. Symptoms and clinical course of inadequate drainage
3. Tests for patency
4. Developmental and adult anatomy
5. Frequency and position of strictures
6. Technique of probing in the infant and in the adult (illustrated by motion pictures).

COURSE 19

Room 734 Period M-5, M-6, T-5, T-6, W-5, W-6

C. ALLEN DICKEY, M.D., et al.

Ocular Motility

A six-period course—$12.00

The first four hours will be devoted to a clinical, rather than a theoretical, presentation of this subject. During the last two hours there will be a panel discussion of some preoperative and postoperative problem cases.

M-5—Esotropia
George S. Campion, M.D.
San Francisco

M-6—Exotropia
Arthur Jampolsky, M.D.
San Francisco

T-5—Vertical Anomalies
Walter L. Roberts, M.D.
Los Angeles

T-6—Surgery
C. Allen Dickey, M.D.
San Francisco

W-5 & 6—Panel Discussion

COURSE 20

Room 786 Periods M-4, M-5

JOHN H. DUNNINGTON, M.D.
ELLEN F. REGAN, M.D.
New York

Cataract Surgery: Complications Due to Defective Wound Healing

A two-period course—$4.00

A poorly healed incision may result in complications such as corneal edema, delayed restoration of the anterior chamber, late fistulization, epithelization of the anterior chamber, and secondary glaucoma. The clinical and pathologic aspects of these complications will be discussed. Emphasis will be placed upon the prevention and treatment of these conditions.

COURSE 21

Room 786 Periods T-4, T-5

GERALD E. FONDA, M.D.
Short Hills, N. J.
and
LOUISE SLOAN, Ph.D.
Baltimore
BY INVITATION

Subnormal Vision: Technique for Examination

A two-period course—$4.00

The technique for subnormal vision examination, with emphasis upon the importance of history taking, nonoptical methods of correction, and the sequence of examination procedures, including the trial of different types of lenses, will be considered.

Correction of 80 per cent of cases with subnormal vision can be accomplished from the trial case by extension of the routine eye examination. The types of lenses used are conventional lenses, strong reading additions for monocular and binocular use, doublet magnifiers, microscopic bifocals, and telescopic lenses. Bifocals with reading additions up to +32.00 diopters are successful.

Various lenses will be demonstrated, and indications for their use will be explained. Types of pathologic ocular conditions, favorable and unfavorable for correction, will be classified.

Method of testing visual acuity at 40 cm. for determining diopter power required for variable degrees of visual defect will be explained.

COURSE 22

Room 740 Periods M-4, M-5, T-4, T-5, W-4, W-5

BERNARD GETTES, M.D.
EDWARD J. DONNELLY, M.D.
Philadelphia

Refraction

A six-period course—$12.00

M-4 & 5—Low Vision, Aids, Management

T-4—Drugs in Refraction

T-5—The Use of Prisms

W-4—Management of Aphakia

W-5—Management of Presbyopia and Bifocals

COURSE 23

Room 752 Periods M-4, T-4, W-4

GEORGE P. GUIBOR, M.D.
Chicago

Orthoptics: Office and Home Techniques

A three-period course—$6.00

The first hour will be devoted to a discussion of those patients with squint existing since birth or shortly thereafter. Such patients will be found to have strabismus fixus, spasmus fixus, intermittent exotropia, spastic esotropia, abducens palsy, and other oculomotor palsies.

During the second hour, heterophorias will be discussed, especially convergence insufficiencies and vertical deviations. A differential diagnosis between the heterophorias and ciliary defects will be presented.

In the third hour, visual defects seen in children and their influence on reading disturbances will be discussed.

COURSE 24

Room 733 Periods W-5, W-6

ROBISON D. HARLEY, M.D.
Atlantic City

Lesions of the Third, Fourth and Sixth Cranial Nerves: Topical Diagnosis

A two-period course—$4.00

Topical diagnosis of lesions of the third, fourth, and sixth cranial nerves requires a systematic consideration of the orbit, cavernous sinus, base of the brain, brain stem, nucleus, and supranuclear connections. This course in the differential diagnosis of various motor anomalies of the eye and the associated signs is designed especially for the practicing ophthalmologist. Anatomy will be reviewed in describing various syndromes as they occur in this clinical approach to the subject. Short case histories will be utilized for illustration of important signs and symptoms.

COURSE 25

Room 736 Periods M-4, M-5, T-4, T-5, W-4, W-5, Th-4, Th-5

WENDELL L. HUGHES, M.D., et al.

Ophthalmic Plastic Surgery: Fundamental

An eight-period course—$16.00

This course is planned in conjunction with the advanced course in Ophthalmic Plastic Surgery (Course 12) and is designed primarily for those interested in plastic and reparative procedures in the region of the eye but whose experience and training have been limited.

M-4 & 5—Fundamental Principles
Deane C. Hartman, M.D.
Los Angeles

Surgical anatomy and physiology of the orbit and eyelids. Choice of tissues for replacement. Types of flaps, grafts and implants. Methods of handling tissues. Instruments, suture materials and types, lid adhesions, types of dermatomes and skin planes. Principle of "Z" plastic. Preparation of operative areas, dressings, and postoperative care.

T-4—Lacerations and Burns of Skin and Conjunctiva; Repair after Removal of Small Tumors of Lid Margins
M. Noel Stow, M.D.
Washington, D. C.

Kodachrome slides will be used to illustrate methods of treatment of lacerations and burns of the skin and conjunctiva as well as various procedures for repair after removal of small tumors of the lid margins.

T-5—Lacrimal Drainage System
Charles E. Iliff, M.D.
Baltimore

1. Brief survey of anatomy of lacrimal drainage system
2. Disease resulting in epiphora and chronic infection
3. Treatment of obstructions in upper and lower lacrimal passages demonstrated by slides and motion pictures

W-4—Ectropion, Entropion and Trichiasis
Crowell Beard, M.D.
San Jose, Calif.

Ectropion is divided into three groups:

spastic, senile and cicatricial. These will be described and their surgical treatment will be discussed.

Entropion will be considered and discussed as the senile spastic condition which is so often seen. The surgical treatment of this condition has changed during recent years. Better results are being obtained by the newer operations.

Trichiasis exists when all or part of the cilia turn inward and irritate the cornea and/or bulbar conjunctiva. The treatment depends upon the number and position of inturning cilia and upon the cause of the condition. The techniques will be discussed.

W-5—Ptosis, Blepharochalosis, Conjunctivochalosis, Baggy Lids
Wendell L. Hughes, M.D.
New York

The main points in correction of ptosis will be discussed, emphasizing the complications and how to avoid them. Senile laxity of the tissues and skin of the upper lid and of the lower lid and senile laxity of the conjunctiva with its symptoms and corrective measures will be considered.

Th-4—Exophthalmos, Enucleation, Evisceration, Lid Reconstruction
Wendell L. Hughes, M.D.

Exophthalmos, with measures for relief of the danger to the eye, indications for enucleation versus evisceration, and the principles of lid reconstruction will be summarized.

Th-5—Panel Discussion

During this period the instructors will clarify or augment remarks made in their lectures. Those men taking the course may bring up questions for discussion. They may also bring pictures of cases which they wish discussed.

Those planning to take the course may write any members of the panel in advance to request discussion of certain subjects in this field.

COURSE 26

Room 724 Period M-4, M-5

LESTER T. JONES, M.D.
Portland, Ore.

Lacrimal Drainage Apparatus

A two-period course—$4.00

In the first period the anatomy and physiology of the lacrimal system will be reviewed and some newer concepts will be presented. Hypersecretion, hyposecretion, epiphora and congenital anomalies will be discussed together with their treatment.

During the second period the surgical procedures recommended for obstructions found in various parts of the excretory system will be considered. The following procedures will be included:

1. Slitting the canaliculi
2. Canaliculodacryocystostomy
3. Canaliculorhinostomy
4. Conjunctivodacryocystostomy
5. Conjunctivorhinostomy
6. Dacryocystorhinostomy
7. Repair of medial canthal injuries

COURSE 27

Room 722 Periods M-4, M-5, T-4, T-5, W-4, W-5, Th-4, Th-5

WILLIS S. KNIGHTON, M.D., et al.

Practical Essentials of Glaucoma

An eight-period course—$16.00

A practical course in glaucoma designed to familiarize the student with present-day thinking regarding classification, diagnosis and treatment. The practical application of modern concepts and methods of examination and treatment will be emphasized.

Introduction
Willis S. Knighton, M.D.
New York

Chronic Simple Glaucoma
P. Robb McDonald, M.D.
Philadelphia

Angle Closure Glaucoma
Paul A. Chandler, M.D.
Boston

Medical Treatment
Irving H. Leopold, M.D.
Philadelphia

Surgical Principles
John M. McLean, M.D.
New York

Gonioscopy
Harold G. Scheie, M.D.
Philadelphia

Secondary Glaucoma
Joseph A. C. Wadsworth, M.D.
New York

Congenital Glaucoma
A. Gerard DeVoe, M.D.
New York

Tonography
Andrew de Roetth, Jr., M.D.
New York

COURSE 28

Room 706 Period M-5, M-6

ALBERT N. LEMOINE, JR., M.D.
JAMES T. ROBISON, M.D.
LARRY L. CALKINS, M.D.
Kansas City, Mo.

Fundus Lesions: Differential Diagnosis

A two-period course—$4.00

Kodachrome fundus photographs will be presented with discussion of the significant points in the differential diagnosis of the various types of fundus disease. Photomicrographs demonstrating the pathologic processes that produce the fundus picture will be shown. The correlation between the anatomic changes and fundus appearance will be discussed in detail.

COURSE 29

Room 706 Periods W-5, W-6

ARTHUR LINKSZ, M.D.
New York

Physiology of Vision

A two-period course—$4.00

COURSE 30

Rooms 788 & 789 Periods M-4, M-5, M-6, T-4, T-5, T-6, W-4, W-5, W-6

ROBERT J. MASTERS, M.D.
Indianapolis

HARVEY E. THORPE, M.D.
Pittsburgh

ALEXANDER A. KRIEGER, M.D.
Pittsburgh

JOHN MELVIN MASTERS, M.D.
Indianapolis

SAMUEL N. KEY, M.D.
Austin, Texas

FRED M. WILSON, M.D.
Indianapolis

Slit Lamp Biomicroscopy: Fundamentals

A nine-period course—$18.00

This course is especially planned for ophthalmologists who have not had the opportunity to learn how to use the slit lamp biomicroscope. The illustrated lectures have been shortened as much as seems commensurate with adequate elementary didactic instruction, in order to provide ample time for actual work with several types of biomicroscopes in the laboratory. If any registrant is especially interested in learning to use a particular kind of biomicroscope, he will be given this opportunity with the help of our instructors. During the many years since our group first began to present our Academy course in biomicroscopy, we have sometimes been disturbed by the thought that some of our inexperienced registrants were failing to learn as much as we wanted them to, because they were embarrassed in the presence of other class members who were more experienced. We have therefore set up this elementary course for those who want to start at the beginning and to enjoy the satisfaction of rapidly learning to use this indispensable instrument.

COURSE 31

Room 796 Period M-4, T-4, W-4, Th-4

JOHN M. McLEAN, M.D.
New York

JACK S. GUYTON, M.D.
Detroit

Practical Factors in Eye Surgery

A four-period course—$8.00

Each of the instructors will speak for one hour on practical points in surgery which he has found useful in his own hands and in teaching residents. They will also present lantern slides and motion pictures. While one instructor is

speaking, the other will be present to give running comments on the speaker's ideas. The remaining time will be devoted to summary and consideration of points brought up by the class for specific discussion.

COURSE 32

Room 702 Periods M-4, T-4, W-4

CARROLL R. MULLEN, M.D.
Philadelphia
and
SAMUEL BLANK, M.D.
Waterbury, Conn.
BY INVITATION
CHARLES G. STEINMETZ, III, M.D.
BY INVITATION
GERARD M. SHANNON, M.D.
Philadelphia

Ocular Emergencies

A three-period course—$6.00

Anesthesia and its problems, injuries to the lids and the globe, and other problems associated with the emergency care of eye conditions will be presented. Indication and contraindication to local and general anesthesia will be treated from the standpoint of risks encountered in specific ophthalmic emergencies, such as trauma, foreign bodies, acute glaucoma, corneal transplant operations, including management of patients having associated cerebral injury. Preparation and premedication for local and general anesthesia will be considered. Choice of anesthetic in children as well as adults and postanesthetic and postoperative management will be discussed.

The discussion will include diagnosis and treatment of penetrating wounds and lacerations of the globe. The problem of intraocular foreign body care will be dealt with, as well as contusions of the globe with complications of hyphema, hemophthalmos, posterior rupture and anterior rupture of the globe. Treatment of chemical burns, thermal burns, and burns due to irradiation will be considered. Burns from ultraviolet, infrared, roentgen rays, beta rays, ultrasonic, and radar, and special industrial and scientific hazards, such as the beam from the cyclotron, will be included.

Plastic surgery approach will include two methods for repair of lid lacerations. Injuries to the lacrimal system and the repair of lacerations involving either canthus will be discussed. Repair of eyelid injuries where loss of tissue has resulted will be presented.

COURSE 33

Room 732 Periods M-5, M-6, T-5, T-6

DOHRMANN K. PISCHEL, M.D.
San Francisco
JOSEPH A. C. WADSWORTH, M.D.
New York
BAYARD H. COLYEAR, JR., M.D.
San Francisco

Retinal Detachment

A four-period course—$8.00

The pathologic anatomy of retinal detachment will be presented and the relation of these factors to the clinical development of the disease will be shown. Aids in diagnosis and differential diagnosis will be described. Surgical procedures, including diathermy and the various types of scleral resections, will be discussed.

COURSE 34

Room 731 Periods T-4, T-5

ADOLPH POSNER, M.D.
GEORGE GORIN, M.D.
New York

Office Gonioscopy

A two-period course—$4.00

The course is intended as a practical introduction to the routine use of gonioscopy. The first period will be devoted to a gonioscopic description of the normal angle and to a survey of those pathologic conditions in which gonioscopy is of value. A simple gonioscopic classification of glaucoma, illustrated with lantern slides, will be presented.

During the second period the technique and equipment will be discussed and ample time will be allowed for a free discussion of problems connected with gonioscopy.

COURSE 35

Room 705 Periods M-4, M-5, T-4, T-5

CHARLES D. J. REGAN, M.D.
Boston
PAUL BOEDER, Ph.D.
Iowa City

Refraction: Basic Optics and Clinical Technique

A four-period course—$8.00

This course will correlate the principles of simple optics with the measurement of refractive errors and prescription of correcting lenses.

After a review of the optical properties of lenses and of image formation by the eye, an effective method of measuring errors of refraction with astigmatic dials will be demonstrated, using members of the class as patients.

The final prescription of lenses will be discussed with particular reference to multifocal elements, prismatic effects, and anisometropia.

COURSE 36

Room 726 Period M-4, M-5

R. WINSTON ROBERTS, M.D.
Winston-Salem, N. C.

Glaucoma: Early Diagnosis

A two-period course—$4.00

Success in treating glaucoma has proved to be much greater when therapy is begun early in the course of the disease. Screening techniques for early detection of glaucoma cases will be described. Detailed study of suspected cases will be discussed, including the use of modern techniques of tonometry, visual field testing, and especially tonography, provocative testing with tonography, and gonioscopic technique and interpretation. Findings used in a diagnosis and proper classification of very early glaucoma will be reviewed.

COURSE 37

Room 724 Periods W-4, W-5

DANIEL M. ROLETT, M.D.
New York

Gonioscopy: Practical Application

A two-period course—$4.00

This course is designed for ophthalmologists familiar with gonioscopy. The use of gonioscopy will be described, first in the diagnosis of primary and secondary glaucomas; second, in the choice of medical and surgical therapy; third, in the evaluation of surgical results. Particular emphasis will be given to the use of gonioscopy in the operating room.

COURSE 38

Room 743 Periods M-4, M-5, T-4, T-5

HUNTER H. ROMAINE, M.D.
New York

Ocular Motility Surgery

A four-period course—$8.00

Surgery of the ocular motor system will be considered from several aspects:

1. The relationship of the preoperative diagnosis and of the preoperative care to the surgical procedure to be undertaken
2. Types of surgical procedures, techniques used in these procedures, and instruments and suture material used in these procedures
3. The horizontal surgical procedures and their relation to existing conditions and to purely vertical muscular anomalies, as well as to combinations of these groups
4. The complications that occur, the handling of these complications, and ways and means to obviate complications

The course will be illustrated by various motion pictures of surgical procedures.

COURSE 39

Room 740 Periods M-6, T-6, W-6

HUNTER H. ROMAINE, M.D.
New York

Difficult Problems in Refraction and Their Treatment

A three-period course—$6.00

A general review of the important problems related to refraction, including a review of the major refractive classifications, will be undertaken at the outset of this course. Following this, a thorough

study of the unusual problems encountered in diseases such as aphakia, anisometropia, and amblyopia will be presented. The refractive sensitivity of an individual and its bearing on the correction prescribed, the methods used in prismatic correction in lenses, and the use of specialized lenses will be discussed. The significance of dominance and its relation to refraction will also be included in the lecture. The course is intended to be a general review of problems in refraction, including special attention to unusual problems.

COURSE 40

Room 796 Periods M-5, M-6, T-5, T-6, W-5, W-6, Th-5, Th-6

CHARLES L. SCHEPENS, M.D.
Boston
BY INVITATION
and
EDWARD W. D. NORTON, M.D.
New York
and
ICHIRO D. OKAMURA, M.D.
Boston
BY INVITATION

Retinal Detachment

An eight-period course—$16.00

Symptoms of retinal detachment and methods of treatment will be discussed, with special emphasis on slit lamp examination of the deep vitreous, indirect ophthalmoscopy, and scleral pressure. These methods should help to resolve difficulties in making accurate diagnoses and prognoses. Problems related to subclinical retinal detachment will be covered. The rationale and technique of retinopexy, of lamellar scleral resection and of scleral buckling will be compared. A discussion of technical difficulties will follow with special emphasis on reoperations. Complications encountered and results obtained will be presented.

COURSE 41

Room 732 Periods W-4, W-5

ROBERT A. SCHIMEK, M.D.
New Orleans
FRANKLYN P. BOUSQUET, M.D.
Savannah, Ga.

Clinical Gonioscopy and Tonography

A two-period course—$4.00

1. Demonstration of Techniques
   Human subjects will be utilized for demonstration of gonioscopy and tonography. Their aqueous-outflow constants will be determined. Members of the group may use each of the various gonioprisms with the slit lamp and the goniolens with the gonioscope on human subjects.
2. Clinical Applications
   Landmarks of normal and abnormal angles as they actually appear during gonioscopy will be shown by means of stereoscopic slides.

The theory and practical applications of tonography will be presented. Emphasis will be placed on correlation of gonioscopic and tonographic findings in determining diagnosis, treatment, and prognosis of various types of glaucoma in a series of patients.

COURSE 42

Room 724 Periods Th-4, Th-5

THEODORE F. SCHLAEGEL, JR., M.D.
Indianapolis
and
LOUIS N. HUNGERFORD, JR., M.D.
Seattle
BY INVITATION

Uveitis

A two-period course—$4.00

Since uveitis should be classified as granulomatous or nongranulomatous as the first step in the process of diagnosis and therapy, this division will be followed in our discussion. The methods of making this classification and of making an etiologic diagnosis based on clinical and laboratory features and the essentials of treatment will be detailed.

COURSE 43

Room 706 Periods T-5, T-6

ROBERT N. SHAFFER, M.D.
San Francisco

Gonioscopy: Practical Application

A two-period course—$4.00

COURSE 44

Room 715 Periods M-5, M-6

M. NOEL STOW, M.D.
L. CONNER MOSS, M.D.
Washington, D. C.

Diagnostic and Therapeutic Office Procedures

A two-period course—$4.00

Pathologic conditions requiring medical or surgical treatment which are encountered in office or clinic practice will be discussed. They are neither rare nor routine, but their early detection or effective management may present some difficulty.

During the first hour, practical study will be made of such problems as ophthalmic pain, detection of holes in the retina prior to detachment (direct ophthalmoscopy), herpes zoster, persistent twitching of the orbicularis, and daily use of mydriatics in cases of early cataract.

Included in the second hour will be discussion of the surgical treatment of chalazia, xanthelasmas, hemangiomas, papillomas, dyskeratoses, melanomas, and basal cell and squamous cell carcinomas.

Kodachrome slides will be used for illustration.

COURSE 45

Room 754 Periods M-4, M-5, M-6, T-4, T-5, T-6, W-4, W-5 W-6, Th-4, Th-5, Th-6

GEORGIANA D. THEOBALD, M.D., et al.

Histopathology

A twelve-period course—$24.00

The teaching will be by lecture, microprojection and microscope. It is recommended that the student review the normal histology of the eye before attending this course.

The Cornea

Frederick C. Blodi, M.D.
Iowa City

The normal histology will be reviewed. The anatomical picture will be correlated with the slit lamp examination of the cornea. The problem of corneal transparency will be discussed from an anatomical, chemical and physical point of view.

The general pathology of the cornea will be discussed in the following order: corneal edema, vascularization, keratitis, wound healing, epithelial changes and changes in Descemet's membrane and on the posterior corneal surface.

The specific pathology will include a discussion of suppurative and nonsuppurative keratitis, senile changes, corneal degenerations, and pigmentations.

Surgical Pathology of the Eye

Leonard Christensen, M.D.
Portland, Ore.

This presentation is concerned with the tissue alterations, pathogenesis and sequellae of the more common complications in intraocular surgery. The lectures will be illustrated with photomicrographs.

Pathology of the Optic Nerve

Windsor S. Davies, M.D.
Detroit

A classification of the pathologic changes as observed in the optic nerve will be presented. Various lesions will be demonstrated by lantern slides. A correlation will be made between clinical and pathologic findings.

Tumors of the Orbit

Arnold W. Forrest, M.D.
White Plains, N. Y.

There will be a discussion of the pathologic characteristics of orbital tumors and the clinical conditions which result from them. The seven most common types, which comprise 75 per cent of primary orbital tumors, will be studied in detail. Sections will be provided for microscopic examination.

The Retinopathies

William C. Frayer, M.D.
Philadelphia

The discussion will deal primarily with the histologic changes produced in the choroid and retina by hypertension, diabetes and arteriosclerosis. Particular emphasis will be given to the underlying anatomic and physiologic vascular disturbances. Histologic features of the retinopathies will be correlated with their clinical appearance and will be illustrated by lantern slides and microscopic sections.

Pathology of the Lens
Michael J. Hogan, M.D.
San Francisco

The purpose of this lecture will be to present the normal histology of the lens and the etiology and pathogeny of cataractous changes. The histopathology will be described in detail, including changes in the capsule, lens epithelium, and lens fibers. Senile cataract in its various manifestations will be discussed from a clinical and pathologic standpoint. Cataracta complicata of the posterior and anterior types will be demonstrated. Diabetic and metabolic cataracts will be discussed.

Pathology of Glaucoma
A. Ray Irvine, Jr., M.D.
Los Angeles

The instruction on glaucoma will include the pathologic changes found in open and in closed angle glaucoma. The usual causes of secondary glaucoma, such as occlusion of the central retinal vein, lens changes, and neoplasms of the anterior segment, will be discussed. The effect of increased intraocular pressure upon each part of the eye, such as destruction of the corneal endothelium with subsequent bullous keratopathy and necrosis of the iris with atrophy, will be included. There will be illustrative photomicrographs shown and actual slides of primary glaucoma will be presented.

Tumors of the Uvea
John S. McGavic, M.D.
Bryn Mawr, Pa.

All of the tumors involving the uveal tract will be discussed and illustrated. Both primary and secondary tumors will be included. Most of the time will be devoted to benign and malignant melanomas, as they are the most common. Nevi, neurofibromas, hemangiomas, leiomyomas, xanthoendotheliomas, lymphomas and various metastatic tumors will be presented. Microscopic sections will be available for study as well as for projection.

Tumors of the Retina
Edith Parkhill, M.D.
Rochester, Minn.
BY INVITATION

The gross and microscopic pathology of retinoblastoma will be presented with the aid of lantern slides. Factors in etiology and prognosis will be considered; when the cases are classified according to certain factors in the history and microscopic findings, it is found that the survival rate in one group is almost 100 per cent.

Cells Found in Inflammatory Lesions
Georgiana D. Theobald, M.D.
Oak Park, Ill.

Cytology, pathology and sequelae of ocular inflammations will be discussed.

Granulomatous Infections of the Eye
Lorenz Zimmerman, M.D.
Washington, D. C.

Among the many different causes of "granulomatous inflammation" involving ocular tissues are infectious agents which may be demonstrated histologically within the eye. These include nematode larvae, Toxoplasma, tubercle bacilli, leprosy bacilli, Treponema, inclusion bodies, and fungi such as Blastomyces and Cryptococcus. None of these are demonstrated with ease since a prolonged search of serial sections is necessary in some cases and special staining techniques are required in others.

"Granulomatous inflammation" is a term preferred to "granulomatous uveitis" since in many of these infections the process is neither primarily nor predominantly uveal. Sympathetic ophthalmia is the only type of granulomatous inflammation that is a true uveitis.

Nongranulomatous Infections of the Eye
Lorenz Zimmerman, M.D.

COURSE 46

Room 744 Periods M-4, M-5

HARVEY E. THORPE, M.D.
Pittsburgh

Intraocular Foreign Bodies

A two-period course—$4.00

A comprehensive survey of established and newly developed techniques for the removal of foreign bodies from the eyeball will be presented.

Magnetic and nonmagnetic intraocular foreign bodies create special surgical problems. Accurate determination of functional and anatomic damage is important. Methods for evaluation of extent of trauma to ocular tissues and of impairment of vision will be analyzed.

Location of foreign bodies by roentgenograms must be accurate for successful operation. The electroinductive locator is a distinct help in foreign body localization both before and during operation. These methods of localization will be elaborated in this course.

The surgical technique for removal of foreign bodies must be properly planned from incision to closure. Techniques for removal of foreign bodies from the anterior chamber, iris, lens, ciliary body, vitreous, and retina will be reviewed.

There will be a discussion of the management of associated complications, such as laceration, uveal and vitreous prolapse, traumatic cataract, retinal detachment and infection. A review of preoperative and postoperative care will be included.

COURSE 47

Rooms 788 & 789 Periods Th-4, Th-5, Th-6

HARVEY E. THORPE, M.D.
Pittsburgh

ROBERT J. MASTERS, M.D.
Indianapolis

ALEXANDER A. KRIEGER, M.D.
Pittsburgh

JOHN MELVIN MASTERS, M.D.
Indianapolis

FRED M. WILSON, M.D.
Carmel, Ind.

SAMUEL N. KEY, M.D.
Austin, Texas

Advanced Slit Lamp Biomicroscopy: Recent Developments

A three-period course—$6.00

1. Use of Hruby lens
2. Use of flat contact lens for slit lamp ophthalmoscopy
3. Slit lamp ophthalmology and cycloscopy with 4-mirror gonioprism and Goldmann 3-mirror lens

These illustrated lectures will be fairly comprehensive. They will cover the new techniques in cycloscopy, the study of the equatorial region of the crystalline lens, and the examination of the extreme retinal and vitreous periphery. The study of the posterior vitreous and retina with the Hruby lens and with the contact lens as well as with the gonioprism and biomicroscope will be included in this course.

The first two periods of the course will be devoted to illustrated lectures and discussion. The last period will be spent in the demonstration room, where the students will be afforded practice with the new instruments utilized in making examinations of the lens periphery and posterior vitreous. Slit lamp ophthalmoscopy of the central and peripheral retina, which is a recent development, will be stressed; it is especially valuable in finding vitreous bands and peripheral retinal tears, as well as in the differential diagnosis of retinal pathologic changes.

COURSE 48

Room 793 Periods T-4, T-5, T-6 W-4, W-5, W-6

HARVEY E. THORPE, M.D.
Pittsburgh
HERMANN M. BURIAN, M.D.
and
LEE ALLEN
BY INVITATION
Iowa City

Slit Lamp Gonioscopy

A six-period course—$12.00

Slit lamp gonioscopy is essentially a major subdivision of biomicroscopy. This course, intended for the advanced student, will cover the subject of clinical gonioscopy. The original methods of gonioscopy will be covered in outline form. The newer methods of slit lamp gonioscopy employing contact prisms and reflecting contact lenses yield more information than methods not employing the slit lamp. They will be covered in detail.

The following subjects will be included in the discussion:

1. Angle microanatomy and some phases of angle development
2. Gonioscopic instrumentation
3. Correlation of the slit lamp gonioscopic view with histoanatomy
4. The normal angle
5. Congenital anomalies

6. Degenerative changes
7. Inflammatory diseases
8. Glaucoma and observations following operation for glaucoma
9. Cysts and tumors visible with the gonioscope
10. Observations following intraocular surgery
11. Trauma and foreign bodies of the angle

One period will be devoted to practical demonstration of gonioscopy with the slit lamp biomicroscope.

COURSE 49

Room 733 Periods T-5, T-6

C. DWIGHT TOWNES, M.D.
Louisville, Ky.

Cataract Surgery: Complications

A two-period course—$4.00

The first period of this course will deal with the prevention of complications in cataract surgery. The importance of meticulous attention to details in the preparation of the patient, in the performance of the operation, and in the postoperative care will be emphasized.

The second period will be devoted to treatment of complications; particularly, loss of anterior chamber with or without detachment of the choroid, uveitis, suppurative infection of the wound, secondary glaucoma, and changes in the hyaloid.

COURSE 50

Room 728 Periods M-5, M-6, T-5, T-6, W-5, W-6, Th-5, Th-6

RICHARD C. TROUTMAN, M.D., et al.

Recent Advances in Ophthalmology

An eight-period course—$16.00

This course is designed to present to the practicing ophthalmologist a short review of developments during the past year in the areas discussed, with an evaluation of these developments at the clinical level. The Eye Clinics of the State University of New York are so organized as to have specialties within the specialty of ophthalmology under separate departmental chairmen. These chairmen will present their particular interests in critical review. The various lectures will include therapeutics relative to the subject. The course will be completed by a review of the histopathologic changes involved in the various conditions discussed, with special reference to new entities, and the relation of the disease to clinical practice. There will be a 10-minute question period at the end of each lecture during which free discussion will be encouraged. Visual aids will be used to illustrate many techniques and diseases.

M-5—Retinal Detachment
Morton Rosenthal, M.D.
Brooklyn

A discussion of the newer techniques in operations for retinal detachment will be given, and an evaluation of these techniques with special reference to the newer techniques of scleral shortening and vitreous transplantation will be made.

M-6—Strabismus
Abraham Schlossman, M.D.
New York

The newer concepts of strabismus surgery and diagnosis with reference to the use of orthoptics will be presented. The clinical applications of electromyography will be discussed.

T-5—Glaucoma and Perimetry
Seymour Goodstein, M.D.
Bayside, N. Y.

Methods of diagnosis and treatment of glaucoma will be discussed in the light of recent developments in the field, with special reference to the clinical application of new therapeutic agents such as Diamox and the use of tonography as a clinical instrument in the evaluation of glaucoma. Some reference will be made to perimetry and its application to diagnosis and treatment of glaucoma.

T-6—Lid and Plastic Surgery
Peter H. Ballen, M.D.
Hempstead, L. I., N. Y.

New developments in the field of lid and plastic surgery will be presented with special reference to treatment of chemical burns of the eye and certain newer reconstructive techniques for replacement of tissues following excision of tumor.

W-5—Pediatric Ophthalmology
Austin I. Fink, M.D.
Brooklyn

This new ophthalmologic specialty, which is rapidly developing, presents many interesting problems. Some new entities will be discussed. The author's method of handling pediatric patients will be presented.

W-6—Cornea and Lens
Richard C. Troutman, M.D.
Brooklyn

Diagnosis and medical and surgical therapy of diseases of the cornea and lens in the light of recent developments will be presented, with special reference to corneal and cataract surgery.

Th-5—Uveitis
Stanley Masters, M.D.
Roslyn, L. I., N. Y.

A discussion of uveitis, its diagnosis, treatment and the management of complications resulting therefrom will be presented, together with recent advances and their clinical application.

Th-6—Histopathology
Gerald B. Kara, M.D.
New York

A summary of histopathology in relation to clinical disease with special reference to the conditions discussed in previous lectures will be presented. Clinical applications will be stressed.

COURSE 51

Room 726 Periods T-4, T-5

RICHARD C. TROUTMAN, M.D.
Brooklyn

Enucleation Surgery: Complications and Their Management

A two-period course—$4.00

Interest in enucleation surgery has received impetus in recent years due to the development of new implants and prosthetic techniques. These materials and techniques have imposed problems which have not been seen in large numbers by the average ophthalmologist. The added interest in this problem has made it possible for some of us to see and treat enucleation complications. A summary of my experience in the field will be presented, with accompanying case presentations and a motion picture demonstration of operative repairs.

In addition, the newer methods of prosthetic fitting will be presented by Mr. Hugh Laubheimer, emphasizing the close cooperation that is now present and which is necessary for the proper care of the patient with an enucleated eye.

COURSE 52

Room 727 Period M-4, M-5, T-4, T-5

MAYNARD C. WHEELER, M.D.
PHILIP KNAPP, M.D.
New York

Concomitant Strabismus

A four-period course—$8.00

The emphasis will be on the practical management of concomitant strabismus. The examination of the patient will be considered in detail. Nonsurgical treatment will be fully discussed. Indications and contraindications for orthoptic training will be stressed. Problems to be considered will include (1) the selection of patients with types of esotropia and exotropia amenable to operation, (2) the choice of muscles on which to operate, and (3) the decision regarding when to operate.

COURSE 53

Room 776 Periods M-4, M-5, M-6, T-4, T-5, T-6, W-4, W-5, W-6, Th-4

Home Study

A ten-period course—$20.00

These discussion periods will be based on lesson material in the Home Study Course in Ophthalmology and will be conducted by the Home Study Course faculty. They will provide a review of basic subjects and will present up-to-date clinical applications.

M-4—Embryology, Anatomy and Neuro-Anatomy

John Woodworth Henderson, M.D.
Ann Arbor, Mich.
M. Noel Stow, M.D.
Washington, D. C.
Raymond E. Meek, M.D.
Stephentown, N. Y.

M-5—Physiology
Irving H. Leopold, M. D.
Philadelphia
Robison D. Harley, M.D.
Atlantic City
Hendrie W. Grant, M.D.
St. Paul, Minn.
George P. Guibor, M.D.
Chicago

M-6—Optics and Principles of Biomicroscopy
Edwin F. Tait, M.D.
Norristown, Pa.
Bourne Jerome, M.D.
Minneapolis
Arthur Linksz, M.D.
New York

T-4—Refraction
Manuel L. Stillerman, M.D.
Chicago
Bernard C. Gettes, M.D.
Philadelphia
Frank W. Newell, M.D.
Chicago

T-5—Ocular Microbiology, External Diseases and Aseptic Technique
Henry F. Allen, M.D.
Boston
Samuel J. Kimura, M.D.
Berkeley, Calif.
James H. Allen, M.D.
New Orleans
Samuel N. Key, M.D.
Austin, Texas

T-6—Perimetry and Neuro-ophthalmology
John P. Wendland, M.D.
Minneapolis
Edward W. D. Norton, M.D.
New York
Placidus J. Leinfelder, M.D.
Iowa City
Cecil W. Lepard, M.D.
Detroit

W-4—Extraocular Muscles
Hunter H. Romaine, M.D.
New York
Hermann M. Burian, M.D.
Iowa City
Conrad Berens, M.D.
New York

W-5—Ophthalmoscopy and Medical Ophthalmology
William Banks Anderson, M.D.
Durham, N. C.
Frank C. Winter, M.D.
Menlo Park, Calif.
John P. Macnie, M.D.
New York

W-6—Pathology
John S. McGavic, M.D.
Bryn Mawr, Pa.
Joseph A. C. Wadsworth, M.D.
New York
Michael J. Hogan, M.D.
San Francisco
Georgiana D. Theobald, M.D.
Oak Park, Ill.

Th-4—Pharmacology and Therapeutics
Alfred J. Kreft, M.D.
Portland, Ore.
Kenneth C. Swan, M.D.
Portland, Ore.

COURSE 101

Crystal Room — Period W-6

RUDOLF AEBLI, M.D.
New York

End Results of Muscle Surgery

The subject matter of this presentation will be a series of patients followed for a varying number of years, with an evaluation of the end results from a cosmetic and a functional viewpoint. Enthusiastic and excessive operation on the interni or the externi or the vertical muscles interferes with conjugate movements and with convergence and, too frequently, ends in disappointment in later years.

Adhesions, secondary contractures, muscle fibrosis and scar tissue formation are sequelae which produce unexpected and disappointing results and make subsequent corrective operations more difficult and uncertain.

Recession and resection operations are not simple innocuous procedures, especially on the obliques and the vertical recti. A careful dissection with retention of the muscle facial envelope, maintenance of a good dry field, avoidance of undue trauma to the muscle and the adjacent tissues, and good wound closure are essential to success. In general, excessive crippling of the function of any one muscle should be avoided and the operation should be spread over multiple muscles, thereby retaining good parallel and nonparallel ocular movements.

COURSE 102

Room 702 — Period W-6

EDWARD C. ALBERS, M.D.
Champaign, Ill.

The Iris in Aphakia

This lecture is designed to give a complete resume of the iris pictures, normal and abnormal, which the practicing ophthalmologist may see when treating and refracting eyes with aphakia. A large number of kodachrome pictures taken from the lecturer's own practice will be shown. Such conditions as iris atrophy; irregular pupils due to prolapse of iris, angular adhesions, vitreous adhesions, and incarcerations of the zonula; sympathetic and parasympathetic paralysis; depigmentation of the iris; proliferation and transplantation of pigment; Elschnig's pearls; iridoschisis; and many other conditions will be shown and discussed.

COURSE 103

Room 711 — Period T-5

C. KNIGHT ALDRICH, M.D.
Chicago
BY INVITATION

Emotional Problems of the Ophthalmologist's Patients

The hour will be devoted to a discussion of the causes, symptoms and appropriate treatment of emotional factors of patients seen by the ophthalmologist. The following specific subjects will be covered:

1. General symptomatic manifestations of emotional tension
2. Psychophysiological reactions and the eye
3. Visual hypochondriasis
4. Conversion reactions, such as hysterical blindness
5. The impact of organic disease of the eye
6. Signs of psychosis, with particular reference to visual hallucinations

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COURSE 104

Room 727 — Period M-6

HENRY F. ALLEN, M.D.
Boston

Aseptic Technique in Ophthalmology

Recent outbreaks of postoperative endophthalmitis in large hospitals, in addition to sporadic cases in smaller ones, show that the danger of surgical infection is ever present. Many substances and certain devices used for purposes of sterilization can actually serve as carriers of infection. Many new developments have occurred in the fields of air filtration, skin antisepsis, and individualization of

solutions for use in the eye. Sterility surveys of operating suites and office treatment facilities are now considered essential. Knowledge of newer preventive measures may reveal unsuspected inadequacies and forestall serious complications which might otherwise beset the most conscientious surgeon.

COURSE 105

Room 711 Period M-4 or T-4

MOACYR E. ALVARO, M.D.
Sao Paulo, Brazil

Uveitis: Etiology and Treatment

The main subject for discussion will be chronic endogenous uveitis. Topics for consideration will include the incidence of uveitis and its clinical diagnosis by modern methods of examination. The differential diagnosis of granulomatous and nongranulomatous types of uveitis will be discussed with a consideration of the subjective and objective symptoms of each group. The difficulty of establishing an etiologic diagnosis will be elaborated, and the laboratory procedures and skin tests useful for this purpose will be described. Present-day knowledge of the pathogeny of the disease as a basis for treatment will be reviewed. A practical approach toward early treatment, etiologic diagnosis and final treatment of the true etiologic factors will be presented.

COURSE 106

Room 710 Period M-6

BENNETT Y. ALVIS, M.D.
St. Louis

Glaucoma Surgery: Long-term End Results

This study will present the course of the diseases and end results in eyes that have been operated on for various types and stages of glaucoma. It will be based largely on experience with a considerable number of private patients whose cases were followed for varying lengths of time up to thirty or more years. Some comparisons will be made with eyes treated for similar periods by nonsurgical means.

COURSE 107

Room 715 Period T-4

JAMES M. ANDREW, M.D.
Columbus, Ohio

Eye Diseases in Children

COURSE 108

Room 721 Period W-6

TAYLOR ASBURY, M.D.
Cincinnati

Practical Genetics in Everyday Office Practice

It is increasingly important that the clinician be aware of the practical importance of genetics in everyday practice. Much has been learned about the genetic background of many eye diseases. It is necessary to understand a few basic principles of genetics in order to be able to counsel patients in an intelligent way, but one need not be an expert geneticist.

This course approaches the subject in a simple way, beginning with the basic principles of dominant, recessive, and sex-linked inheritance. Practical advice for patients relative to specific diseases such as retinoblastoma, refractive errors, strabismus, retinitis pigmentosa, glaucoma, and cataract, will also be discussed.

COURSE 109

Room 724 Period T-4

WALTER S. ATKINSON, M.D.
Watertown, N. Y.

Cataract Extraction: Procedures Which Decrease Complications

A discussion of procedures which have greatly decreased complications during and after cataract extraction.

COURSE 110

Room 715 Period M-4

ROBERT E. BANNON
Buffalo, N. Y.
BY INVITATION

Aniseikonia: Its Role in Refractive Problems

Every new correction of refractive errors changes the seeing conditions to which the patient has become accustomed. The magnitude of these changes and the patient's tolerances determine whether or not binocular vision will be comfortable and efficient. Aniseikonia (not equal images) is one condition which may arise. It is most frequently associated with the correction of unequal refractive errors, and in certain cases it can cause persistent discomfort.

A brief review of aniseikonia and space eikonometry will be followed by a discussion of various clues and procedures that are useful in detecting aniseikonia in routine office practice.

COURSE 111

Room 736 Period M-6

CONRAD BERENS, M.D.
New York

Cycloelectrolysis, Cyclodiathermy, Iridencleisis and Cyclodialysis

A statistical evaluation of the postoperative results and complications following penetrating and nonpenetrating cyclodiathermy, penetrating and nonpenetrating retrociliary diathermy, cycloelectrolysis and retrociliary cycloelectrolysis in over 1,700 eyes observed for one to fourteen years postoperatively will be discussed.

The postoperative results and complications following iridencleisis and cyclodialysis will be evaluated.

The indications, contraindications and techniques of these procedures will be described.

COURSE 112

Crystal Room Period T-5

CONRAD BERENS, M.D.
New York

Ophthalmic Surgery: Recent Trends

Presentation of a sound film showing the following surgical techniques:

1. Evisceration and enucleation, using hollow mesh-capped plastic implants
2. Lamellar keratoplasty
3. Retinal detachment surgery, utilizing special pins and the application of diathermy
   Scleral buckling in a case where the sclera was too thin and fibrotic for a scleral resection
4. Resection and advancement of the levator for ptosis
5. Tucking of the superior oblique muscle
6. Retroplacement of the superior oblique
7. Subconjunctival closure of cataract wound

COURSE 113

Crystal Room Period T-6

RAYNOLD N. BERKE, M.D.
Hackensack, N. J.

Ptosis: Surgical Treatment

In general, resection of the levator is the operation of choice for most types of ptosis because this operation usually gives the best cosmetic and functional results, especially in unilateral ptosis. Slides and motion pictures will be shown illustrating the technique and results of resection of the levator through the conjunctiva and through the skin.

COURSE 114

Room 743 Period M-6

JEROME W. BETTMAN, M.D.
San Francisco

Radioactive Isotopes

This course is designed for the practicing ophthalmologist who wishes to understand something of radioisotopes.

First: A very simple, easily comprehensible explanation of the fundamentals of radioisotopes: A, B, and G emissions; half life; differences in energy. Conditions under which only pure B emitters are useful in diagnosis and experimental work in ophthalmology will be discussed.

Second: A brief consideration of the place and value of radioisotopes in ther-

apy and in diagnosis, including the use and abuse of P^{32} in the diagnosis of intraocular neoplasms.

Third: The experimental use of radioisotopes as an indication of the blood volume of the choroid and retina. This sheds considerable light on which agents actually dilate the intraocular blood vessels and which do not. Deductions of very practical clinical significance will be made.

COURSE 115

Room 743 Period T-6

JEROME W. BETTMAN, M.D.
San Francisco

Value of Goniotomy

This course will consist of a practical, thorough, clinical discussion of congenital glaucoma.

The diagnosis, differential diagnosis, and prognosis of congenital glaucoma will be reviewed. Evidence will be presented to demonstrate that goniotomy is the procedure of choice in congenital glaucoma. Each of the modern techniques of goniotomy will be presented, including goniotomy without visual control, goniotomy with a contact lens, and goniotomy while air is continuously injected. Their merits will be compared, and the preoperative and postoperative care will be considered.

Goniotomy is one of the great surgical advances in modern ophthalmology. It has already saved many from a life of total blindness.

COURSE 116

Room 711 Period Th-4

HAROLD M. BLOCK, M.D.
Dallas

Office Practice of Ophthalmology

In this course it is my intention to explain various types of office procedures for medical and surgical conditions, with the patients' reactions in mind, and in such a way as to have better patient-doctor relationships. Procedures learned in the clinics and hospitals will be explained from the viewpoint of their application in private practice. The course is especially designed for the young ophthalmologist.

COURSE 117

Room 710 Period T-6

G. BONACCOLTO, M.D.
New York

Enucleation Techniques: Present Status

Following a brief description of several of the newer innovations in the enucleation technique, this course will include a discussion of the different types of implants in use today and their relative advantages and disadvantages on the basis of (1) technique of muscle attachment to implant; (2) durability; (3) complications during and after the operation. The lecture will be illustrated with slides and motion pictures in color.

COURSE 118

Room 721 Period Th-4

ARNOLD S. BREAKEY, M.D.
New York

Rehabilitation in Ophthalmology

This course will deal with the management of the ocular manifestations of damage to the central nervous systems of children. This problem is mainly one of oculomotor imbalance complicated by a high incidence of congenital anomalies. Reading problems, visual field defects, ocular toxoplasmosis, ptosis and nystagmus are frequently encountered. Generally accepted principles for ophthalmic care are not applicable to this group. The medical and surgical management will be stressed. Testing for perceptual defects will be discussed.

In adults, central nervous system damage causes loss of visual field, accommodative insufficiency, oculomotor imbalance, diplopia, reading problems and optic atrophy. Since the ocular apparatus does not develop new central pathways by means of passive exercise, we must teach the patients to get along with "what is left." Rehabilitation from the ocular standpoint is most important to the "whole patient" because the handicapped person depends to an extra measure on his eyes. The use of various me-

chanical and optical appliances to facilitate their work will be exhibited. The problem of visual aphasia is a serious one. Its treatment will be discussed.

COURSE 119

Room 716 Period M-4 or T-4

F. PHINIZY CALHOUN, JR., M.D.
Atlanta

Epithelization of the Anterior Chamber: Diagnosis and Treatment

A review of the pathogenesis, incidence, and histopathology of this condition, with detailed discussion of the clinical manifestations and recent developments in diagnostic tests and methods of treatment.

COURSE 120

Room 750 Period M-5

FRANK D. CARROLL, M.D.
New York

Optic Nerve Lesions: Differential Diagnosis

Lesions of the optic nerve must be first differentiated from lesions caused by intracranial expanding lesions and disorders of the macula. Then an etiologic differential diagnosis of the optic nerve condition must be sought. This includes consideration of conditions which are inflammatory, degenerative, vascular, neoplastic, or toxic. An outline of the author's approach to this problem will be presented.

COURSE 121

Room 750 Period T-4 or W-4

J. V. CASSADY, M.D.
South Bend, Ind.

Dacryocystitis and Lacrimal Drainage

Consideration will be given to dacryocystitis, excessive lacrimation, and lacrimal duct obstruction in adults as well as in infants. Kodachrome illustrations of anatomy, embryology, and pathogenesis of lacrimal drainage problems will be shown. Clinical examination, diagnoses, and treatment will be discussed. Irrigation, probing, palliative treatment, and the use of polyethylene tubing will be considered. A film presenting the Dupuy-Dutemps method of dacryocystorhinostomy will be shown.

COURSE 122

Room 781 Period M-4

J. V. CASSADY, M.D.
South Bend, Ind.

Toxoplasmic Retinochoroiditis

The widespread prevalence of toxoplasmosis in man and animal has caused confusion as to its importance in the etiology of retinochoroiditis. The intelligent treatment of retinochoroiditis should be directed to its cause. Clinical, roentgenologic and serologic study of these patients is mandatory before embarking upon treatment with such dangerous drugs as pyrimethamine and sulfadiazine. Skin tests, blood studies, dye tests, and a thorough understanding of the patient must precede therapy directed against toxoplasmosis.

COURSE 123

Room 744 Period W-6

RAMON CASTROVIEJO, M.D.
New York

Corneal Surgery: Techniques and Results

In this course the discussion will include the different types of keratectomies and keratoplasties and the results obtained by the use of each method or combination of different surgical procedures including keratectomies, keratoplasties and plastic repairs of the conjunctiva, with or without buccal mucous membrane implant, which may be required for the rehabilitation in some complicated cases.

COURSE 124

Room 734 Period W-4

WEBB P. CHAMBERLAIN, JR., M.D.
Cleveland

Vertical and Horizontal Components in Strabismus

The importance of the vertical rotators in relation to horizontal squint will

be presented, with particular emphasis on the A and V syndromes in upward and downward gaze. The evidence suggesting that the horizontal recti are the primary causative factor will be considered along with the indications that the obliques or the vertical recti are of basic significance. The diagnosis and treatment of these symmetrical A and V syndromes will be contrasted with the conventional management of vertical and horizontal anomalies not associated with this type of horizontal incomitance in the straight up and straight down positions.

COURSE 125

Room 705 Period W-5

MAX CHAMLIN, M.D.
New York

Perimetry: Techniques for Detection of Minimal Defects

Techniques for the detection of minimal defects in visual fields caused by early lesions of visual pathways will be demonstrated. The mounting of test objects on permanent carriers, as well as care of these test objects, will be shown. The choice of test objects and methods of recording various field defects will also be demonstrated. Principles which apply to the tangent screen as well as to the perimeter will be presented, and the interpretation of minimal findings will be explained. Cases in which the use of the perimeter entirely supersedes the tangent screen, as well as the reverse, will be shown.

COURSE 126

Room 736 Period T-6

PAUL A. CHANDLER, M.D.
Boston

Cataract Surgery: Operative and Postoperative Complications

The principal complication occurring during cataract extraction is loss of vitreous. Steps to avoid loss of vitreous will be discussed. These include preoperative sedation and techniques in anesthesia and akinesia as well as technical aspects of the operation itself. Of the postoperative complications, glaucoma is among the most important. It may be due to vitreous loss, delayed re-formation of the anterior chamber, or incarceration of iris or lens capsule in the wound. Pupillary block is less common, but it is important that this cause be recognized. Emphasis will be placed on measures designed to prevent the complications which lead to glaucoma, and the treatment of glaucoma will be discussed from both the medical and the surgical standpoint.

COURSE 127

Room 705 Period M-6

MORTIMER R. CHOLST, M.D.
Brooklyn

Central Fields: Methods and Techniques

The various methods and techniques presently employed in the mapping of central visual fields will be reviewed, and their respective limitations and advantages will be discussed. This discussion will include the tangent screen and campimeter, with additional reference to the procedures employed in stereocampimetry.

Recent methods wherein test objects are not utilized, such as those utilizing the Amsler charts and Harrington multiple-pattern screening instrument, will also be demonstrated.

Problems of technique to be reviewed will include a means for rapid determination of the patient's comprehension and ability to maintain satisfactory fixation, so vital to accurate visual fields.

A routine for evaluation of the central field in an eye with reduced corrected vision will be presented.

COURSE 128

Room 716 Period M-6

EDITH COHOE
Detroit
BY INVITATION

Special Reading Instruction for the Partially Seeing

This course will include reading instruction for partially seeing children as a group and as individuals with certain eye conditions, such as cataract and nystagmus. Special materials, aids and devices for making efficient use of low vi-

sion, both in the home and at school, will be discussed and demonstrated. The course will be illustrated with colored slides.

COURSE 129

Room 733 Period M-6

TULLOS O. COSTON, M.D.
Oklahoma City

Inflammatory and Degenerative Disease of the Retina: Differential Diagnosis and Treatment

The subject matter to be covered will include senile macular degeneration, Kuhnt-Junius' degeneration, central angiospastic retinopathy, and the lesions of tuberculosis and toxoplasmosis. The author's method of handling these conditions will be discussed. Colored lantern slides will be shown illustrating the various conditions.

COURSE 130

Room 734 Period Th-4

JACK P. COWEN, M.D.
Chicago

Pool Gonioscopy: Technique for Simplified Anterior Chamber Visualization

A simple study of the angles of the anterior chamber, particularly in all cases of glaucoma, can be accomplished by a lens-free method of flooding the inner angle of the eye with saline solution and of studying the submerged chamber angle with flashlight illumination and from five to ten power loupe magnification or, better still, with the detached binocular slit lamp head. The method will be demonstrated and discussed.

COURSE 131

Room 711 Period M-6

JOHN C. CUNNINGHAM, M.D.
Burlington, Vt.

Types of Head Pain as Viewed by the Ophthalmologist

The mechanism of head pain will be discussed. The clinical types of headache arising from intracranial, extracranial and paracranial sources will be reviewed. Particular attention will be given to head pain associated with cranial arteritis, migraine and orbital lesions. Lantern slides will be used in the course.

COURSE 132

Room 710 Period T-4

PAUL L. CUSICK, M.D.
Detroit

Ptosis Surgery: Practical Aspects

Blepharoptosis will be classified according to its causation. The various types will be illustrated with lantern slides. The procedures used by the author to correct the various types will be described, and will be illustrated with lantern slides to show the technique.

Overcorrection and its relief will be discussed, and the procedure used for levator recession will be illustrated with lantern slides.

COURSE 133

Room 734 Period M-4 or T-4

NORMAN L. CUTLER, M.D.
Wilmington, Del.

Cataract: Methods of Extraction

Every ophthalmologic surgeon develops, over a period of years, a definite and somewhat fixed operating procedure for cataract based on his accumulated trial-and-error experience. In this procedure he feels most at home and gets his best results. All of these various methods of intracapsular extraction have been studied, simplified, and refined by different surgeons to determine which presents the fewest complications, from the first incision to final test of vision. It is not the purpose of this instruction hour to review the entire field of cataract surgery. There will be a review of the progress in cataract surgery and a discussion of the present-day trends in incision suturing and methods of lens extraction, including the spoon extraction. Lantern slides and a motion picture will be shown.

COURSE 134

Room 786 Period M-6 or T-6

LOUIS DAILY, M.D.
Houston

Biomicroscopy of Vitreous and Fundus Oculi

Techniques of examination will be described. The normal and pathologic appearance of these structures will be illustrated with sixty colored transparencies made in Vienna under the direction of Dr. Karl Hruby. Types of detachment of the vitreous in association with pathologic states, including spontaneous collapse of the vitreous, hemorrhage into the vitreous, opacities, congenital anomalies, retinitis proliferans, primary and traumatic detachments of the retina, intraocular foreign bodies, tumors and cysts of the choroid, papilledema, retinal cysts, macular edema, chorioretinitis, retinoschisis, and drusen, will be illustrated and described. The clinical significance of these observations will be discussed.

COURSE 135

Room 793 Period M-6

ALAN DAVIDSON, M.D.
New Bern, N. C.

Surgical Instruments: Preparation and Care

This discussion is designed for those ophthalmologists practicing in general hospitals who do not have nurses especially trained to care for ophthalmic surgical instruments. Mention will be made of the manufacture, materials, and choice of surgical instruments as well as their sterilization, preparation and care.

COURSE 136

Room 750 Period M-4

FREDERICK J. DAVIS, M.D.
Madison, Wis.

Sutures in Cataract Surgery: Types and Uses

The usefulness of sutures of some type for firm closure of the cataract incision is now universally recognized.

Among cataract surgeons there is a wide variation in techniques in placement of these sutures as well as in the type of suture material, needles, etc.

This discussion will touch upon these varying techniques and materials and will present some of the methods of closure used by various surgeons. There will be a discussion of conjunctival and scleroconjunctival sutures, corneal and corneoscleral edge-to-edge or "border to border" sutures inserted through the lips of the wound, overriding corneoscleral and episcleral, and track sutures; buried surgical gut; preplaced and postplaced sutures; and suture removal.

COURSE 137

Room 777 Period M-5

ROBERT M. DAY, M.D.
New York

Medical Exophthalmos: Diagnosis and Treatment

The clinical concept of this orbital process, gained from observations in a large thyroid clinic, will be discussed. Terminology, symptoms, signs, course, differential diagnosis and treatment will be presented. The variable clinical picture will be especially emphasized, for the recognition of this condition is most important not only from the point of view of management but also in the evaluation of any form of treatment.

COURSE 138

Room 728 Period M-4 or T-4

A. GERARD DeVOE, M.D.
New York

Corneal Dystrophies and Degeneration

A review will be made of the various types of noninflammatory degeneration to which the cornea is subject. Many of these are amenable to treatment. A working clinical classification has been established and particular emphasis will be placed upon treatment.

COURSE 139

Room 706 Period M-4

SAMUEL M. DISKAN, M.D.
Atlantic City

Visual Screening in Schools

This course will point out the various aspects of visual screening in schools, and stress will be placed on what we must do to keep school vision testing under the supervision of the medical profession, where it belongs. The course will include:

1. The nation-wide problem of school vision testing
2. How to set up a school vision screening program
3. Normal standards of vision for school children
4. Eye tests which lend themselves to mass screening techniques
5. A demonstration of vision screening techniques and equipment.

COURSE 140

Room 731 Period W-6

JOSEPH M. DIXON, M.D.
Birmingham, Ala.

Indirect Ophthalmoscopy in Office Routine and in Intraocular Surgery

Many fundi and fundus lesions can be seen better by indirect ophthalmoscopy than by the direct method. Routine office technique and an outline for the development of skill will be described. An efficient office arrangement which gives the ophthalmologist a choice of direct or indirect ophthalmoscopy, as indicated for each patient, will be illustrated. Advantages and limitations of the two methods of ophthalmoscopy will be compared for the office, for the bedside, and for the operating room. A brief review of the early development of the indirect method will be presented with illustrations of various types of monocular and binocular equipment.

COURSE 141

Room 795 Period M-6

JOSEPH M. DIXON, M.D.
Birmingham, Ala.

IRA S. JONES, M.D.
New York

Intraocular Tumors

The purpose of this course is to present to the ophthalmologist a brief outline for the diagnosis and management of intraocular tumors. The hour will be devoted to methods of examination, the differential diagnosis between tumors and other intraocular lesions resembling tumors, and the management of these cases.

The discussion will emphasize common tumors and the pitfalls found in private practice rather than rare lesions.

COURSE 142

Room 716 Period M-5 or T-5

EDWARD A. DUNLAP, M.D.
New York

Divergence Anomalies

These anomalies consist of divergence excess and divergence insufficiency. Both are characterized by certain specific findings that serve clearly to differentiate them from anomalies of convergence. Their location in the general classification of imbalances and statistics on their relative occurrence will be given.

Symptoms of each type will be listed, and the method of diagnosis will be discussed. Typical case measurements and pictures of each type will be shown.

Treatment, both conservative and surgical, will be outlined, and tabulated results of studies on over one hundred surgically treated cases of divergence excess will be presented.

COURSE 143

Room 710 Period Th-4

DAVID J. EDWARDS
Chicago
BY INVITATION

Abnormal Effects of Prescribed Lenses on Extrinsic Muscles

A controversial problem in applying prescribed lenses is the effect on binocular macular reception.

Ophthalmic anatomists have determined that a retinal cone projects an angle of 37 seconds. This means that about nine cones are used for a 5 minute angle or 20/20 vision. It is agreed that corresponding macular reception is vital to stereopsis and is also necessary for relief of asthenopic symptoms in borderline and subnormal extrinsic muscle cases.

Charts and slides will show what happens when prismatic action deviates the light rays on the foveal area. Properly fitted lenses do not alter the normal visual pathway; improperly fitted lenses not only exaggerate existing phorias but even induce phorias.

This course will stress the effect of all lenses on the visual pathway. It emphasizes the necessity of an accurate interpupillary measurement. Oblique cylinders decentered laterally create hyperphoria. Reversing the bifocal lens to obtain correct neutralization will not give the effective power of the lens. Data from textbooks and how they can be applied practically to all types of lenses will be thoroughly presented.

COURSE 144

Room 777 Period T-4

JOHN A. EGAN, M.D.
Denver

Cross Cylinder: Application and Theory

The use of the cross cylinder as taught by Edward Jackson will be discussed. Improved models will be shown and uses devised since Jackson's time will be described.

Lantern slides will exhibit practical application of the cross cylinder. Large 2-foot models of the cross cylinder, trial cylinder and trial frame will be used to demonstrate general technique for use in refraction. Twelve different uses of the instrument, including the employment of the newer correcting cross cylinder, will be described.

A brief discussion of theories involved in the cross-cylinder method will be presented, and controversial aspects will be discussed. This method of testing for astigmatism will be contrasted with other methods.

COURSE 145

Room 733 Period M-4

WILLIAM G. EVERETT, M.D.
Pittsburgh

Retinal Detachment: Selection of an Operation

The evaluation of the etiologic factors in retinal detachment by direct and indirect ophthalmoscopy and biomicroscopy will be discussed. The type of operation indicated is based on these clinical studies.

The basic operations considered are electrodiathermy, vitreous implantation, and scleral shortening. The advantages of these operations may be variously employed as determined by clinical evaluation.

COURSE 146

Room 777 Period T-5

HAROLD F. FALLS, M.D.
Ann Arbor, Mich.

Practical Application of Heredity

The purpose of this course is to present the principles of heredity so that they may be employed by the clinical ophthalmologist in his daily practice. When possible, diseases having hereditary background will be illustrated and discussed. A demonstration of pedigree taking and interpretation will be presented.

COURSE 147

Room 777 Period W-5

HAROLD F. FALLS, M.D.
Ann Arbor, Mich.

Ocular Geriatrics

A comprehensive survey of the ocular changes and disease states associated with senescence will be presented. When possible, a differentiation will be made between universally occurring disease states in the aged eye and those disease processes appearing in senescence but having no direct relationship to the passage of time.

Treatment, care, and management of the senile eye and individual will receive consideration.

COURSE 148

Room 733 Period M-5

OLGA FERRER, M.D.
Vedado, Havana, Cuba
BY INVITATION

Contact Lenses

Practical application of contact lenses

in surgery, as a diagnostic aid, and in the correction of optical defects will be presented. Attention will be given to problems arising in office practice regarding the indication for contact lenses, selection of type of lens, and fitting techniques.

COURSE 149

Room 777 Period M-6

WALTER H. FINK, M.D.
Minneapolis

Binocular Problems in Routine Refraction

Although the correct selection of lenses solves most of the refractive problems, there remains an appreciable number of cases in which a binocular problem is present to some degree. Because of this, a routine study of the binocular efficiency of all refraction cases is indicated. Although some require a minimum of study, others require an extensive analysis of the binocular function for proper evaluation.

In the presentation, the steps in the investigation of binocular efficiency as carried out in routine refraction are evaluated and the various problems encountered are discussed, particularly the association between heterophoria and the fusional reflexes.

COURSE 150

Room 733 Period Th-4

WALTER H. FINK, M.D.
Minneapolis

Vertical Muscle Surgery

A. Indications for Vertical Muscle Surgery
   1. As applied to the vertical muscles as a whole
   2. As applied to one or more vertical muscles
   3. As applied to combined vertical and horizontal muscle problems

B. Surgical Procedures
   1. Anatomic factors which determine surgical techniques
   2. Description of various surgical procedures

C. Complications Resulting from Improper Management

COURSE 151

Crystal Room Period M-4

F. BRUCE FRALICK, M.D.
Ann Arbor, Mich.

Principles of Lid Surgery

Instead of the usual presentation of schematic drawings of surgical anatomy, the hour will be devoted to the showing, in color, of routine operations on the eyelid which were largely done as outpatient procedures. The good and bad points of the techniques used will be discussed. The commentator will point out surgical anatomical landmarks and the part they play in securing satisfactory cosmetic and functional results.

COURSE 152

Room 777 Period M-4

WILLIAM C. FRAYER, M.D.
Philadelphia

Retained Lens Protein After Operation and Trauma: Recognition of Danger and Treatment

The several mechanisms by which lens protein may contribute to prolonged inflammation following ocular operations and trauma will be discussed. The relative importance of infection, allergy and simple foreign body reactions in such eyes will be evaluated. Clinical and histologic features of lens protein reactions will be illustrated by lantern slides. On the basis of observations made from these presentations, suggestions will be made for a rational approach to clinical management.

COURSE 153

Room 784 Period T-4

BERNARD FREAD, M.D.
New York

Ideal Refraction Equipment: Survey of Instruments Used

Refraction is most important in the daily routine of every ophthalmologist. A good part of each working day is spent with details of refraction and not enough emphasis has been placed upon the tools necessary to make refraction easier, more accurate, and less time consuming.

Every major refraction instrument manufactured in the United States and in the larger optical plants of England, France, Germany, Italy, Japan and Switzerland will be discussed. About two hundred lantern slides will graphically illustrate this equipment.

Attention will be given not only to elementary equipment used by the beginner but also to elaborate devices used for the objective and subjective measurement of refraction of particular interest to the experienced ophthalmologist.

The name, function, manufacturer, and current cost of the various instruments will be reported.

COURSE 154

Room 784 Period M-5

SAMUEL GARTNER, M.D.
New York

Fundus Diseases: Clinical and Pathologic Correlations

The fundus pictures in many diseases will be correlated with the clinical course of the disease and essential pathologic findings. Numerous photomicrographs of eyes obtained at autopsy will demonstrate the vascular diseases, blood dyscrasias, diabetes, and a number of neurologic disorders, including papilledema, optic neuritis, multiple sclerosis and the chiasmal syndrome.

COURSE 155

Room 731 Period M-6

J. CONRAD GEMEROY, M.D.
Detroit

External Diseases

This lecture on external eye diseases, their diagnosis and treatment, is illustrated with kodachrome slides to show the usual, as well as some unusual, diseases of the lids, conjunctiva, and cornea. These illustrations will be projected stereoscopically in color on the screen.

COURSE 156

Room 713 Period T-6

GLEN G. GIBSON, M.D.
Philadelphia

Marginal Myotomy

Marginal myotomy is a conservative, effective operative procedure for esotropia. It was designed to normalize the hyperactive action of the interni without impairing the muscle function in conjugate or disjugate movements. When properly used on well selected patients, the probability of postoperative exodeviation is diminished. It is most effective in patients who have symmetry of visual fixation, and who are sufficiently young to develop conjugate fixation following operation. The end result is excellent in subjects who develop binocular vision and is usually satisfactory in those who do not.

COURSE 157

Room 793 Period M-5

HAROLD GIFFORD, JR., M.D.
Omaha

Local Anesthesia with Special Reference to Deep Motor Block

The methods of producing complete ocular anesthesia as well as complete motor block of the extraocular muscles will be discussed. The anatomy of the orbit with reference to the nerves and blood vessels will be reviewed in detail. The technique will be described with slides and motion pictures. This technique produces a long lasting anesthesia and reduces the pressure on the globe from the extraocular muscles. This is important to prevent vitreous loss and has proved valuable in strabismus and retinal surgical procedures.

COURSE 158

Room 724 Period T-5

ISADORE GIVNER, M.D.
New York

Eye Changes in Systemic Diseases

The diagnosis of a systemic disease is frequently suggested by a study of the eyes. Emphasis in this course will be on how this is brought about. The material will be grouped in four categories.

1. Eye muscle changes in systemic disease. Hyperthyroidism, postencephalitic Parkinson syndrome, myasthenia gravis, erythema nodosum, Guillain-Barre syndrome, and chordoma show characteristic findings.

2. Systemic diseases suggested by slit lamp study. Hepatolenticular degeneration, Kaposi's varicelliform dermatitis, syphilis, brucellosis, sarcoidosis, blood sludging, xanthomatosis, leprosy, and nutritional disorders may first have attention drawn to them by a study of the eyes.
3. Fundus findings in systemic disease. Diabetic, nephritic, and hypertensive retinopathies, collagen diseases, phakomatoses, blood dyscrasias, and subacute bacterial endocarditis have their representation in fundal pictures.
4. Composite eye findings. The diagnosis of sarcoidosis, increased intracranial pressure, Vogt-Koyanagi disease, Stevens-Johnson syndrome, and subarachnoid hemorrhage may be confirmed by various eye changes grouped for diagnostic purposes.

COURSE 159

Room 781 Period M-6

MILLARD E. GUMP, M.D.
Oakland, Calif.

Recurrent Iridocyclitis: Differential Diagnosis and Treatment

The nearly universal use of the corticosteroids in treating iridocyclitis is lulling our medical conscience to sleep. These drugs block inflammation so well that they foster an attitude of less diligence in the attempt to establish a specific diagnosis and to seek out and eliminate etiologic factors.

A review of the differential diagnosis of iridocyclitis will be made. A routine of investigation used at a county hospital, a veterans' hospital and a Naval hospital will be discussed and evaluated.

Treatment with special reference to the corticosteroids and foreign protein will be considered.

COURSE 160

Room 781 Period T-6 or W-6

JOSEPH S. HAAS, M.D.
Chicago

Congenital Glaucoma: Diagnosis and Treatment

Corneal cloudiness, injection of the bulbar conjunctiva, increased lacrimation, or blepharospasm should lead to the suspicion of glaucoma even though no enlargement of the eye has occurred. In view of the urgency of early operation, the tension should be tested with a tonometer under ether anesthesia, preferably intratracheal. There should be complete relaxation at the moment the tension is taken. Once the diagnosis is established, 5 per cent prostigmine should be instilled every three hours and goniotomy performed as soon as possible. Denuding the cloudy epithelium of the cornea makes the operation under gonioscopic control possible in over 90 per cent of cases. The present simplified technique of goniotomy is described.

COURSE 161

Room 711 Period M-5

GEORGE M. HAIK, M.D.
New Orleans

Mechanics of Intracapsular Cataract Extraction

The primary objective of cataract surgery is to deliver the lens by a technique which is at the same time simple and safe, and which is attended with a minimum of postoperative complications. In spite of the numerous improvements which have been introduced, a technique which meets all of these criteria has not yet been found. On the contrary, all of the techniques now employed are sometimes associated with serious hazards and may be followed by serious complications.

For many years intracapsular extraction has been the preferred technique of cataract surgery. One reason, perhaps, that it is not yet as satisfactory as it might be is that too little attention has been paid to the preliminary steps of releasing the lens from its attachments and its subsequent subluxation. When these steps have been accomplished properly, without rupture of the lens capsule, the remaining steps of the operation are usually relatively easy.

COURSE 162

Room 711 Period W-4

THOMAS R. HEDGES, JR., M.D.
Philadelphia

Neuralgias of the Head: Treatment

This subject, important in the daily practice of our specialties, concerns, primarily, a proper evaluation and classification of head pain with relation to its fundamental mechanisms. Once a clear outline of their differential diagnosis and origins is presented, all the neuralgias of the face, both typical and atypical, as well as other types of vascular headaches and head pain from other causes, can be treated intelligently. Each year new methods of diagnosis and treatment appear in the literature. These will be covered in detail with particular aim toward the practical office management of these problems.

COURSE 163

Room 710 Period W-6

JOHN WOODWORTH HENDERSON, M.D.
Ann Arbor, Mich.

Intracranial Arterial Aneurysms: Ophthalmic Findings

The ophthalmic findings of arterial aneurysms of the circle of Willis will be discussed on the basis of a series of 119 cases studied at the University of Michigan. Cranial nerve involvement, visual symptoms and findings, and funduscopic findings will be analyzed. Case summaries and arteriograms of pertinent patients will be noted. The importance of the ophthalmologist's early awareness of such a diagnosis is stressed.

COURSE 164

Room 731 Period W-4

HOWARD F. HILL, M.D.
Waterville, Maine

Cataract Surgery: Keratome and Scissors Technique

The purpose of this course is to describe in minute detail the technique of the cataract operation using the keratome and scissors. A suture technique will be described that gives firm watertight closure of the wound, using buried gut sutures. Meticulous approximation of the wound edges under magnification will be stressed. Points of technique that avoid the more common complications will be emphasized.

Slides and motion pictures illustrating the procedure will be shown.

COURSE 165

Room 736 Period W-6

CHARLES E. ILIFF, M.D.
Baltimore

Ptosis

The surgical anatomy of the lids, on which all ptosis surgery is based, will be discussed in detail and illustrated with slides.

The various types of ptosis, such as congenital, senile, traumatic, and jaw winking, will be discussed. Operations using the frontalis, the superior rectus, and levator muscles will be reviewed, with particular stress on the indication and use of each procedure.

A simplified ptosis operation which shortens the levator and Muller's muscle, thus increasing the primary elevating force to the lid, and which enhances the secondary elevating action of the superior rectus and frontalis, will be demonstrated by a motion picture.

COURSE 166

Room 784 Period M-6

JERRY H. JACOBSON, M.D.
New York

Electroretinography

The change in the electrical status of the retina when it is functioning can be detected and recorded by the relatively simple technique of electroretinography. The test has been shown to be of value in the early diagnosis of retinal degenerations, in retinal detachment, and in evaluation of the status of a retina obscured from ophthalmoscopic view by cataract or vitreous or corneal opacity.

This course will include a description of the technique of the test, with emphasis on the facility with which it can be performed in almost any hospital, and a

discussion of present and future applications. A motion picture will illustrate the actual technique. The related electrophysiological technique of electromyography will also be discussed.

COURSE 167

Room 786 Period W-4

ARTHUR J. JAMPOLSKY, M.D.
San Francisco

Ocular Divergence: Management

Anomalies of divergence follow a general pattern of exophoria, intermittent exotropia at distance, intermittent exotropia at distance and near, and constant exotropia. The importance of suppression, both axial and hemiretinal, is paramount in proper surgical or orthoptic management. The prognosis and methods of treatment (optical, orthoptic, and surgical) differ markedly in exophoria, intermittent exotropia, and constant exotropia. The function of fusional divergence is to be differentiated from the passive and active factors producing intermittent and constant exotropia. The sensory and motor mechanisms in divergence anomalies differ in visually young and visually adult patients, and the management should be modified accordingly.

COURSE 168

Room 784 Period T-5

FRITZ JARDON
Detroit
BY INVITATION

Fitting Ocular Prostheses

The entire field of prosthesis-fitting, following various surgical procedures, will be discussed. Subjects of interest will include enucleation, evisceration, Tenon's capsule implants, integrated implants, secondary implantation and socket restoration.

Use of pressure conformers in correcting abnormalities in sockets and in enlarging sockets and lids in children born without an eye, the preparation for well-functioning prostheses, and methods which give best cosmetic end results will be discussed.

Taking molds of sockets for cover lenses and eyes will be explained, as movement is often greatly improved when the prosthesis is made over a mold.

Color slides will be shown.

COURSE 169

Room 784 Period W-4

FRED JOBE
Rochester, N. Y.
BY INVITATION

Practical Information on Ophthalmic Instruments

The efficient use of an instrument depends to a large extent on its maintenance and adjustment. A knowledge of the performance that can be expected is basic in the proper use of any instrument. This course is designed to give the ophthalmologist a better understanding of his equipment. The fundamental design and construction of the commonly used instruments will be discussed. The material will include ophthalmoscopes, retinal cameras, slit lamps, refractors and keratometers.

COURSE 170

Room 786 Period W-5

CARL C. JOHNSON, M.D.
Boston

Ptosis

This course is concerned with a classification of the various types of ptosis, with particular reference to congenital ptosis. The part played by associated anomalies, the amount of levator function, and the presence of binocular vision will be stressed.

With this classification as a basis, indications for various types of operative procedures will be considered. Particular attention will be paid to levator resection as done through a skin incision. The course will be illustrated by slides and a motion picture.

COURSE 171

Room 728 Period W-4

LORAND V. JOHNSON, M.D.
Cleveland

Bullous Keratopathy: Treatment

A five year follow-up on the use of

greater superficial petrosal neurectomy and of roentgen therapy to the lacrimal gland, as methods of preventing dilution of the evaporation effect on the concentration of electrolytes in the precorneal mucous film will be presented. Evidence will be presented that the reduction of blebs following a satisfactory permanent inhibition of tear function will produce effects quite equivalent to the effect of the instillation of a drop of glycerine onto the cornea. Indications for selection of therapeutic procedure, contraindications, and pretherapy prognosis for various types of causes will be discussed.

COURSE 172

Room 777 Period T-6

HAROLD H. JOY, M.D.
Syracuse, N. Y.

Chronic Glaucoma: Surgical Management

The object of this course is to present in a practical manner the indications and contraindications for surgical intervention, the proper choice of operation, the various standard techniques, the handling of operative and postoperative complications, and the procedures to be used when reoperation is necessary.

The dangers and disadvantages of surgical intervention are analyzed, as are the salient features which should determine whether or when an operation is indicated. Particular attention is paid to selecting a procedure which will best meet the needs of the case at hand with special reference to the condition of the chamber angle. The standard techniques are discussed in detail, including modifications, safety measures, complications, and reoperations.

COURSE 173

Room 786 Period W-6

KELVIN A. KASPER, M.D.
Philadelphia

Dacryocystorhinostomy

A modified version of the Mosher-Toti operation, emphasizing its simplicity and the safety in using an external approach and bloodless field will be demonstrated. The regional anatomy, the various structures encountered, the limits of safety, and methods used to prevent later closure will all be considered. Preoperative preparation, exact technique of local anesthesia and postoperative care will also be outlined.

A film in color will show the entire operation. Following the film, questions on any phase of it will be answered with still pictures or animations for elucidation.

Those who wish may examine window dissections on fresh cadaver material.

COURSE 174

Room 784 Period W-5

DEWEY KATZ, M.D.
Hartford, Conn.

Ophthalmic Anatomy: Clinical Significance and Application of Recent Advances

This course will be devoted to a presentation and discussion of recent advances in the realm of ocular anatomy and histology, the clinical significance of such advances, and the important clinical applications of some of the lesser known anatomic facts as well as a few of the well established ones. The anatomic basis for a number of clinical entities and the practical surgical import of some unusual anatomic facts will be discussed.

COURSE 175

Room 750 Period W-6

I. HERBERT KATZ, M.D.
Syracuse, N. Y.

Common Eye Diseases of Dogs and Their Therapy

The following points will be considered: (1) medicolegal aspects, including relationship of doctors of medicine and veterinarians; (2) external diseases, including injuries, melanotic keratitis, keratomalacia, ulcers and other corneal affections; (3) glaucoma, cataract, and fundus diseases.

Almost every ophthalmologist at some time or another is asked about eye diseases of dogs.

COURSE 176

Room 784 Period W-6

THOMAS P. KEARNS, M.D.
Rochester, Minn.

Unusual Neurologic Motor Anomalies: Clinical Diagnosis

A number of the more unusual motor anomalies of a neurologic nature will be discussed. Emphasis will be placed on the unusual anomalies to enable the ophthalmologist interested in neuro-ophthalmology to acquaint himself better with all forms of extraocular movement disorders. Chronic, progressive external ophthalmoplegia, aberrant regeneration of the third nerve, skew deviation, nystagmus retractorius, "doll" movements and oculogyric crisis are included in the conditions discussed. A motion picture will be used to illustrate the various conditions.

COURSE 177

Room 784 Period T-6

ROSCOE J. KENNEDY, M.D.
Cleveland

Ocular Manifestations of Systemic Diseases

Many systemic diseases have characteristic ocular manifestations. Every ophthalmologist should be familiar with these for better recognition and handling of such cases. Any and all parts of the eye may be involved by many of these diseases.

The recognition of some of the more common systemic diseases by their ocular manifestations will be discussed, including hyperthyroidism, syphilis, tuberculosis, and diabetes mellitus.

Other less common diseases, such as lupus erythematosus, sarcoidosis, brucellosis, tularemia, and myasthenia gravis, will be reviewed.

Colored slides will be used to demonstrate the various manifestations.

COURSE 178

Room 750 Period T-5 or W-5

ALFRED KESTENBAUM, M.D.
New York

Reading Aids for Low Vision

Four reading devices are available for low vision: magnifying eyeglasses, loupe, telescopic loupe, and magnifying projection. Practical rules by which the required strength of these devices can be calculated from an individual's visual acuity will be discussed.

For very low vision (20/300 to finger counting at four feet) the magnifying eyeglass is available. The advantages and disadvantages of elimination of spheric aberration by using a small lens (original microglasses), by two air-separated lenses (microscopic lenses), by a combination of several lenses, and by lenses with aspheric curvature will be discussed and results from the use of each of these aids reported. If the strength of the device prescribed has been properly calculated from available formulas, patients with vision as low as finger counting at four feet are almost invariably able to read usual print unless they have some psychological handicap, such as unwillingness to read. In some instances the vision attained deviates from the calculated improvement because of the nature of the disease. These deviations will be discussed.

A plan will be developed to aid in establishing further clinics for patients with low vision.

COURSE 179

Room 777 Period W-4

J. HARRY KING, JR., M.D.
Washington, D. C.

Preserved Ocular Tissues Used for Transplantation

Nonpenetrating keratoplasty has useful applications in numerous corneal conditions. Every ophthalmologist should recognize its values whether or not he desires to perform the procedure. The indications, new methods of diagnosis, and improved surgical techniques will be discussed and illustrated.

A method for preserving corneas by dehydration, and storage without refrigeration, will be described and demonstrated. The technique of utilizing preserved corneas for lamellar grafting will be shown.

Preservation of the vitreous in powdered form and its implantation in cases of retinal detachment and in transplantation in patients with cloudy media will be discussed and illustrated.

Studies in preserving other ocular tissues will be mentioned.

COURSE 180

Room 731 Period W-5 or Th-4

BERTHA A. KLIEN, M.D.
Chicago

Clinical Pathology of the Retina

The clinical manifestations of a diseased retina and pigment epithelium, and the pathogenesis of retinal disease in general will be discussed prior to a demonstration of the specific findings in a selected group of such diseases. Special emphasis will be placed upon the diagnosis of functional, inflammatory, and degenerative lesions of the macula lutea and on their differential diagnosis with relation to melanotic tumor, where this question arises.

COURSE 181

Room 793 Period M-4

ABRAHAM L. KORNZWEIG, M.D.
New York

Clinical Embryology

A study of the embryology of the eye has many practical values for the ophthalmologist. It enables him to understand the structure of the eyeball by seeing how it developed. This helps him to appreciate the functioning of the different parts of the globe. Above all, it aids in the differentiation of defects in the eye due to developmental and hereditary causes from those due to environmental conditions.

A series of slides will be shown demonstrating critical periods in the development of the human eye. Special attention will be given to abnormalities of the eye; congenital cataracts; congenital hydrophthalmos; typical colobomas of the iris, choroid, ciliary body and optic nerve; aniridia; microphthalmia; abnormalities of the optic disc; congenital defects in the retina; and retrolental fibroplasia.

COURSE 182

Room 706 Period W-4 or Th-4

BERNARD KRONENBERG, M.D.
New York

Practical Ocular Therapeutics

This course will present therapeutic measures for the most common and frequent ocular problems. Diseases of the cornea, uvea, vitreous and retina will be discussed. The course will also delineate the limitations of our knowledge in the therapy of some of the baffling diseases. An attempt will be made to keep the discussion on a practical level.

COURSE 183

Crystal Room Period W-5

PETER C. KRONFELD, M.D.
Chicago

Present Trends in Ocular Pharmacology

The pharmacologic agents currently in the limelight are (1) the new hypotensive and specific central nervous system-depressant drugs, (2) the carbonic anhydrase inhibitors, (3) the congeners of epinephrine, (4) the chemotherapeutic agents against protozoa, and (5) the new antibiotics that hold promise of being effective against viruses and fungi. In some of these areas tangible progress has been made; in others only the general direction of current investigative efforts can be reported.

COURSE 184

Room 744 Period T-6

BRENDAN D. LEAHEY, M.D.
Lowell, Mass.

Corneal Transplantation

Practical points in preparatory surgery and therapy, operative techniques, and complications will be stressed, with special emphasis on current trends in graft fixation. Various types of overlying and direct sutures and splints will be shown along with several recently designed instruments. The newest version of the author's preplaced track suture method will be included. With this technique, silk sutures are inserted, running

1 mm. on each side of the trephine mark. These are stained with methylene blue and pulled through, leaving blue tracks for the subsequent direct sutures. Corresponding preplaced sutures are inserted in the graft with the aid of a plastic turret-style holder. For grafts up to 6 mm. in diameter, overlying sutures are also utilized.

The lecture will be illustrated by a series of eighty-five slides and a short motion picture, with sound, of one operation.

COURSE 185

Room 733 Period T-4 or W-4

PLACIDUS J. LEINFELDER, M.D.
Iowa City

Perimetry and Use of the Tangent Screen

A discussion of the relative values of perimetry and tangent screen in the examination of patients with neurologic diseases and glaucoma. Exceptions will be pointed out.

Description of the techniques used for each method are given and the importance of the use of proper test objects is explained.

COURSE 186

Room 743 Period W-4

ROBERT W. LENNON, M.D.
Joliet, Ill.

Acute Inflammatory Glaucoma: Therapy

The therapy of acute inflammatory glaucoma will be divided into medical and surgical categories. Medical treatment will be discussed from the standpoint of local and oral medication. Special reference to the pharmacologic and physiologic actions of all the drugs employed in acute glaucoma will be made. Parasympathomimetic and sympathomimetic agents will be reviewed. Miotics will be classified and their physiologic action on the pupil described. A review of Diamox will be given, and this drug's role in the treatment will be explained.

Surgery of acute inflammatory glaucoma will be discussed with special reference to the types of surgery as well as to the timing of the procedures.

The lecture will be supplemented by the use of colored slides to explain the therapy discussed.

COURSE 187

Crystal Room Period M-6

IRVING H. LEOPOLD, M.D.
Philadelphia

Advances in Ophthalmic Therapy

Each passing year medical progress occurs, new drugs are introduced, more information is accumulated concerning older drugs, and methods of therapy are altered by virtue of the accumulated experience. New antibiotics, which at one time were thought possibly to be unnecessary, are introduced. However, with the rapid development of very resistant organisms with extreme virulence, it has become apparent that more effective antibiotics, especially against the resistant staphylococcus, are required.

Good therapeutic agents and procedures may have untoward effects. New agents introduced in the last twenty years, especially within the last decade, have produced several types of man-made disease. Peptic ulcers and advancing dendritic keratitis from steroids; fungus infections, staphylococci enteritis, vitamin deficiency from antibiotics; vascular allergies from sulfonamides, iodides, penicillin, and a multitude of drug reactions from the many new agents. It is essential that ophthalmologists have in mind the iatrogenic diseases which their therapies can produce. This applies to glaucoma, uveitis, ocular infections and therapeutic trials in other ophthalmic conditions. It is essential that one review the value of prophylactic therapy with antibiotics and decide whether or not it would be better to use prophylaxis of this type or maintain careful observation of the patient and start treatment for infection as soon as it is recognized, with antibacterial agents specifically directed against the causative organism.

It is quite evident as one reviews the progress in medicine and in ophthalmology, as in every sphere of human endeavor, that new therapies create new problems at each step. At times this may be discouraging, but it is never dull.

COURSE 188

Room 750 Period M-6 or T-6

CECIL W. LEPARD, M.D.
Detroit

Eye Diseases Common to Children

Those ocular diseases occurring primarily in children constitute a group of special interest to the ophthalmologist, particularly when the method of examination or the differential diagnosis differs from that for those diseases in the adult. The technique and results of examination of premature infants will be discussed. The following syndromes will be discussed: neuroblastoma, chloroma, Schuller-Christian's disease, and eosinophilic granuloma. The discussion will be illustrated by lantern slides showing photomicrographs and findings in the eye and orbit.

COURSE 189

Room 726 Period T-6

IRVIN LEVY, M.D.
Trenton, N. J.

Practical Uses of Contact Lenses

Today contact lenses have more than hurdled the bridge of vanity into the realm of function. Every ophthalmologist must be aware of the indications for contact lenses. He should also be acquainted with the different makes and types of contact lenses. Whether he personally fits or does not fit contact lenses, he should be able to recognize the elements of a successful contact lens fitting. He should also be able to recognize the reasons for discomfort and failure in contact lens fitting. These fundamentals along with the technique of contact lens fitting will be discussed in this course.

COURSE 190

Room 713 Period Th-4

J. EARL LEWIS
Chicago
BY INVITATION

Mechanical Visual Aids

A presentation of various aids for the patient with low visual acuity.

Many cases of subnormal vision can be greatly aided by telescopic and microscopic spectacles.

There will be a demonstration of the latest devices known to optical science for relief of subnormal vision and a presentation of case histories. Patients who have been helped by these aids will be introduced.

A high power add bifocal-type spectacle can be made in a temporary form to be tried by the patient, at a nominal cost, to determine how much his vision can be helped before the final or permanent lenses are ordered. Various changes can be made in this temporary type, at no additional cost during the experimental period, as it is sometimes necessary to see the patient two or more times before the permanent lenses are ordered. Frequently the final prescription will be weak as compared to what is first required. It is possible to incorporate the distance prescription in the permanent lenses, if so desired by the practitioner.

Various authorities estimate that over 60 per cent of the visually handicapped can be materially helped by the use of these aids.

COURSE 191

Room 705 Period Th-4

JAY G. LINN, JR., M.D.
Pittsburgh

Choice of Glaucoma Operation

The surgical treatment of glaucoma is indicated for many patients in spite of our recent advances in medical therapy. There are numerous cases which still cannot be controlled medically. In others, surgery is the treatment of choice because anatomic or etiologic factors are present which are known to be the cause of the glaucoma and which can be corrected by surgery.

The course will include consideration of the complete examination of the patient to discover all factors relative to the glaucoma. The mode of action for the various basic types of glaucoma operations will then be discussed. The operation selected in individual cases should be the one most likely to correct those abnormalities responsible for the increased intraocular pressure.

Each type of glaucoma will be discussed and the operation most effective

in controlling the tension considered, with the reasons for its greater chance of success.

COURSE 192

Room 727 Period T-6

RALPH I. LLOYD, M.D.
Brooklyn

Fundus Lesions of the Senile Eye

A number of fundus conditions seen in the macular area of aging eyes have been rated as entities but are really stages of a process resulting from the effects of time upon the elastic tissues of the lamina of Bruch and the choroidal vessels. The earliest phase is seen frequently in the eyes of older persons as an atrophy of the choroidal pigment exposing the choroidal vessels, which later become sclerotic. If the condition progresses, subretinal hemorrhages and exudate occur, with Coats's disease, disciform degeneration of the macula and angioid stripes as the final phase. Some of these lesions must be differentiated from metastatic lesions and tumor. As few of these eyes come to the laboratory, study of these lesions through the various stages is important.

COURSE 193

Room 727 Period W-5

RALPH I. LLOYD, M.D.
Brooklyn

Diseases of the Cornea

The slit lamp has had almost as important an effect upon our knowledge and treatment of the cornea and its diseases as the ophthalmoscope did in the hands of Graefe and his colleagues. This period will be devoted to study of corneal injuries and diseases. special attention being given to early diagnosis and treatment of the insensitive corneas occurring in Fuchs's dystrophy and dendritic keratitis. The effects of hereditary dystrophies have been considered irreparable, but recent experience with corneal transplants has made reconsideration of established practices imperative.

COURSE 194

Room 716 Period T-6

JOHN CHENAULT LONG, M.D.
Denver

Retinoblastoma and the Pseudoretinoblastomas: Differential Diagnosis

Familiarity with the clinical features of retinoblastoma will make it easier to differentiate between this and other confusing ocular disorders of childhood. The characteristics of retinoblastoma and the various pseudoretinoblastomas will be discussed. The technique of the diagnostic examination will be stressed. The aim of the presentation is to facilitate accurate diagnosis of these conditions by the clinician who sees them only infrequently.

COURSE 195

Room 743 Period W-5

VIRGINIA LUBKIN, M.D.
New York

Psycho-Somatic Aspects of Ophthalmology

The scope of this subject is so great that each year certain fields will be selected for intensive study. This year, there will be (1) a review of the reading problem, assessing the relative weights of the ophthalmologic, neurologic, social and psychiatric factors; (2) a review of recent experimental neurophysiologic research involving the diencephalon, rhinencephalon, and neighboring structures. These phenomenal studies (utilizing implantation of electrodes and cholinergic drugs, etc.) give promise of defining the hyphen in the word "psycho-somatic."

COURSE 196

Room 726 Period W-4

CYRIL M. LUCE, M.D.
Philadelphia

Wound Healing

Of the various ocular wounds, the one of major interest to the average ophthalmologist is that following cataract extraction. Since the integrity of the wound

represents an important factor in the avoidance of early and late complications, it is important to study both the normal and abnormal healing of cataract incisions. The healing of wounds, both with and without sutures, and the use of permanent and absorbable sutures will be discussed.

The healing of wounds following various types of scleral resections has achieved some importance in the recent literature. Details of the healing of scleral wounds, the method of handling conjunctival wounds following various muscle procedures, and the method of handling the flap in several glaucoma operations will be discussed.

COURSE 197

Room 722 Period M-6

ANGUS L. MacLEAN, M.D.
Baltimore

Cataracts: Surgical Management

This subject will be considered with respect to preliminary examination, preoperative preparation, the operation, and postoperative care. The general preliminary examination, including necessary specific tests, and the detailed local examination of the eye will be outlined. Preoperative preparation, including both general and local procedures, will be discussed. Significant points in the operative technique will be considered, including the use of the conjunctival flap as opposed to no flap and the choice of techniques for the extraction of the lens. Postoperative care, from the procedures immediately following the operation to the final refraction and fitting with glasses, will be comprehensively discussed.

There will be a motion picture demonstration.

COURSE 198

Room 715 Period W-4

AUREL E. MANGOLD
New York
BY INVITATION

Proper Fitting of Glasses

This discussion will stress the following subjects:

1. The necessity of analyzing the prescription so that the finished glasses will give maximum comfort and efficiency
2. Anisometropic and unusual prescriptions and their effects on visual comfort
3. The importance of individual pupillary distance measurements
4. Lens form and its effect on visual comfort
5. The importance of vertex distance
6. The proper selection of bifocals in cases of hyperopia and myopia
7. Colored lenses
8. All types of telescopic and microscopic systems
9. Methods of determining causes of patients' complaints with finished glasses
10. Suggested procedure for examination of a pair of glasses

COURSE 199

Room 716 Period W-4

MORTIMER MANN, M.D.
Indianapolis

Hypertensive Vascular Changes in the Fundus

The proper interpretation of the changes produced in the fundus as a result of arterial hypertension depends on their correlation with other clinical and laboratory data. The various ophthalmoscopic findings in essential hypertension, malignant hypertension, toxemia of pregnancy, and acute and chronic nephritis will be presented and discussed in relationship to other manifestations of these diseases. The extent to which observations of the fundi are helpful in prognosis and treatment will also be considered.

COURSE 200

Room 710 Period M-4

PAUL L. MARKS, M.D.
Baton Rouge, La.

Electrical Currents Used in Ophthalmology

COURSE 201

Room 724 Period W-6

P. ROBB McDONALD, M.D.
Philadelphia

Penetrating Wounds of the Eye

Any penetrating wound of the eye must be considered as an ophthalmological emergency. The discussion will be concerned with the prevention of infection and indications for surgical intervention. Methods for handling corneal and scleral wounds will be presented. The management of iris prolapse, lens damage, and intraocular foreign bodies will be discussed.

COURSE 202

Room 781 Period W-4
or or
Room 712 Period Th-4

JAMES L. McGRAW, M.D.
Syracuse, N. Y.

Contact Lenses

In this course the relative merits of contact lenses as compared with spectacles will be presented. The advantages and disadvantages of the various types of contact lenses will be reviewed. Among the lenses to be discussed are the conventional fluid lens, the corneal lens, and the ventilated lens.

Comparative fitting time, wearing time, and subjective and objective effects of the various lenses will be discussed. Indications and contraindications for contact lenses will be presented.

COURSE 203

Room 726 Period W-5

WILLIAM P. McGUIRE, M.D.
Winchester, Va.

Cataract: Management of the Patient

This course is being offered for the first time because it is felt that some discussion of the management of the patient with cataract will be helpful. Discussion of the various surgical procedures will be held to a minimum. The psychological approach to the problem, both in the preoperative and postoperative phases, will be emphasized. Problems in refraction encountered in the rehabilitation of the patient with aphakia will also be considered in some detail.

COURSE 204

Room 744 Period W-5
or or
Room 740 Period Th-4

SAMUEL J. MEYER, M.D.
Chicago

Glaucoma: Surgical Treatment

The principles of the surgical treatment of glaucoma will be elaborated upon. The indications for the various types of operations and their mode of action will be correlated with the gonioscopic findings. Indications for surgical intervention in the various secondary glaucomas will be given. The treatment of the complications following surgical procedures for glaucoma will be reviewed.

COURSE 205

Room 784 Period M-4

RICHARD A. MILLER, M.D.
Memphis

Corneal Diseases

This course will consist of a kodachrome picture demonstration of corneal diseases. A brief review of the normal histology and physiology of the cornea will be included along with diagnosis and treatment of the various dystrophies and diseases seen in practice.

COURSE 206

Room 711 Period T-6 or W-6

W. HOWARD MORRISON, M.D.
Omaha

Glaucoma: Office Management

The control of glaucoma as an office procedure will be considered. Attention will be directed to the action of medications and their proper prescription. Particular emphasis will be placed upon the use of miotics together with drugs that decrease the production of aqueous.

The importance of the individual's phasic variation pattern in relation to the proper timing of medication will be stressed.

The role and frequency of tonography, tonometry, gonioscopy, ophthalmoscopy, and biomicroscopy, refraction and perimetry will be discussed. A consideration of office records, environmental difficulties and patient education will be undertaken.

COURSE 207

Room 743 Period W-6

WILLIAM F. MURRAH, JR., M.D.
Memphis

Aids for Subnormal Vision: Clinical Evaluation

The author will list and classify the visual aids which he has used in improving the vision, either distance or near, of the patient whose best vision, aided or not aided by glasses, is poor and unsatisfactory.

Kodachrome slides will be used to show these various aids for subnormal vision, including telescopic and microscopic devices; and an evaluation and comparison of their physical characteristics and optical properties will be given along with how they may be used.

The amount of improvement found in the different grades of subnormally poor vision in a comprehensive series of patients following use of the various devices will be shown, and a frank and practical evaluation of these findings is presented.

COURSE 208

Room 727 Period W-4

HOWARD A. NAQUIN, M.D.
Baltimore

Dislocation of the Lens

Displacements of the lens will be reviewed from an etiologic and topographic point of view. The complications arising from displacements of the lens will be outlined and their treatment discussed. Special emphasis will be given to the problem of congenital dislocated lenses and arachnodactyly. Associated systemic and ocular abnormalities of this syndrome will be discussed. The indications for surgical intervention will be presented, and surgical technique will be discussed. Operative and nonoperative complications in a series of cases will be presented.

COURSE 209

Room 732 Period Th-4

FRANK W. NEWELL, M.D.
Chicago

Refinements in Ophthalmic Surgery

In this course, the chief concern shall be with developments in the production of adequate anesthesia and instruments, medications and surgical techniques that have proved themselves useful in practice. Various techniques will be illustrated by means of kodachrome slides and motion pictures.

COURSE 210

Room 727 Period W-6

KENNETH N. OGLE, Ph.D.
Rochester, Minn.
BY INVITATION

Stereopsis: Present Concept

In this course the basic facts of stereoscopic vision will be considered. The topics discussed will include (1) relationship to general space perception, (2) retinal correspondence, (3) disparate images, (4) stereoscopic sensation, (5) stereoscopic acuity, (6) limitations as to both distance and disparity, (7) relationship to fusional movements, and (8) duration of stimuli. Also, some theoretical and practical aspects of stereopsis will be considered. Much of the material for the course will be based on the results of research over the past decade.

COURSE 211

Room 728 Period Th-4

KENNETH N. OGLE, Ph.D.
Rochester, Minn.
BY INVITATION

Binocular Oculomotor Coordination and Imbalances

The physiologic and neurologic com-

ponents of the convergence processes, especially as related to the accommodation-convergence association, to fusion and fusional movements, and to the accommodative convergence and the proximal convergence, will be considered. Also discussed will be the phenomenon of fixation disparity and its use as a tool for studying oculomotor imbalances, especially when the eyes are subject to the stress of prism vergences and changes in the stimulus to accommodation. The data of representative cases will be presented.

COURSE 212

Room 743 Period Th-4

JAMES A. OLSON, M.D.
Detroit

Iritis, Iridocyclitis, Keratitis: Differential Diagnosis and Treatment

This course will present a review of the differential diagnostic points in nongranulomatous and granulomatous inflammations of the anterior uveal tract and the nonsuppurative inflammatory lesions of the cornea. Attention will be directed to the current methods of therapy, including the use of corticotropin (ACTH), cortisone, and hydrocortisone. The efficacy of the various methods of administering these agents, the dosages, and the problem of prolonged treatment and repeated treatment will be discussed. The use of antibiotics and the other supportive therapeutic measures in selected cases will be presented. Attention will be directed to the continued importance of careful physical examinations and the subsequent correction of possible causative focal defects or generalized disease processes.

COURSE 213

Room 744 Period M-6

MORRIS S. OSHER, M.D.
Cincinnati

Diagnostic Approach to Surgical Correction of Squint

An accurate diagnosis based on the actions of the eye muscles is an absolute necessity for good postoperative results in the surgical correction of strabismus. An easy understanding of the main actions of the extraocular muscles will facilitate such preoperative diagnosis and will also make simple a quick diagnosis of the various muscle imbalances, particularly vertical imbalances. Tests for motility, convergence and fixation will help to determine specifically the muscle or muscles to be operated upon.

COURSE 214

Room 721 Period W-5

HUBERT O. PAULSON, M.D.
Lincoln, Neb.

Lighting for Comfortable and Accurate Seeing

Illumination plays as important a part in correction of asthenopia as do refractions and orthoptics. Many industrial and home visual tasks can be accomplished much more efficiently and comfortably with proper illumination. The five requirements of illumination will be presented according to more recent standards. The proper use of fluorescent and incandescent sources of light will be discussed.

COURSE 215

Room 732 Period M-4 or T-4

BRITTAIN F. PAYNE, M.D.
New York

Extraction of Complicated Cataract

The successful extraction of complicated cataracts depends on the experience of the surgeon, the preparation of the patient, good anesthesia, simple technique and reliable assistants.

1. Congenital and Juvenile Cataract. The operation for congenital cataract may revert to the simple discission procedure rather than the "two-stages" rapid extraction.
2. Cataracts Complicated by High Myopia and Fluid Vitreous. Extraction of the cataracts is successful if good anesthesia and control of the patient are obtained.
3. Cataract with Glaucoma Filtration. A filtering cicatrix with iris inclusion may be preserved by making a corneal incision anterior to it.

4. Discission Operation for Secondary Membrane. A secondary membrane may be resistant and excessive manipulation may be required to clear the pupil. Such procedures may cause iridocyclitis, detachment of the retina, or secondary glaucoma from hemorrhage.
5. Cataract Extraction with Glaucoma. Good anesthesia and softening of the eye with xylocaine and hydase are essential for successful extraction of the lens when the intraocular tension is increased. A generous iridectomy is necessary and should be performed.

Kodachrome slides and motion pictures in color will be presented.

COURSE 216

Room 702 Period W-5

RAYMOND L. PFEIFFER, M.D.
New York

Roentgenography of the Eye and Orbit

Perhaps the most important advance in our understanding of tumors of the orbit is that which concerns those of the lacrimal gland. It is now known that not all of the epithelial growths in this structure are malignant. As a matter of fact, approximately half of these, which comprise about half of all the tumors of the gland, are benign. In addition, it is known that changes in the orbits are associated with these epithelial growths and that these changes are demonstrable by x-ray and may serve to differentiate the benign from the malignant. In this course a great variety of conditions which may affect the fossa of the lacrimal gland will be shown in differential diagnosis.

COURSE 217

Room 731 Period T-6

GUILLERMO PICO, M.D.
Santurce, Puerto Rico

Dacryocystorhinostomy

A technique of external dacryocystorhinostomy which has been found simple, safe and successful will be described in detail. Kodachrome slides and a motion picture in color will illustrate the steps of this operation. The almost complete absence of bleeding is one of its most desirable features.

Important aspects in the regional anatomy will be demonstrated. Preoperative preparation, anesthesia and postoperative care will be discussed.

COURSE 218

Room 705 Period W-4

RALPH H. PINO, M.D.
Detroit

Aids to the Ophthalmologist in Office Practice

Modern comprehensive office procedure in ophthalmology is time consuming and highly technical. The work load of the ophthalmologist will increase until a balance is struck between the number of doctors of medicine graduated and population requirements. There are modern methods, including the use of technical assistants, by which the ophthalmologist can care for more people more efficiently than by traditional methods.

Leadership by the doctor of medicine in treatment and prevention of blindness is in direct proportion to the number of people he is able to care for scientifically and efficiently. Those he cannot care for will go elsewhere at a time in the history of medicine when one person goes blind every twenty minutes in the United States.

Modern office methods will be discussed and illustrated with lantern slides. Time will be reserved for questions and examination of record materials.

Consideration of our office methods is essential in implementing the important objectives of the National Medical Foundation For Eye Care.

COURSE 219

Room 713 Period W-4

LELAND H. PREWITT, M.D.
Ottumwa, Iowa

External Eye Diseases Associated with Allergy

I. Diagnosis
   a. Discussion of diagnostic procedures, including use of an allergic-history-and-treatment form covering the patient's life from infancy to the present illness

b. Classification of lesions involving the lids, lid margins, lacrimal apparatus, conjunctiva, cornea and sclera into general groups, such as contact, atropic, infectious, sebòrrheic
c. Demonstration of skin tests and cytology

II. Treatment
a. Treatment by an elimination program in allergies due to (1) inhalants, (2) contactants, (3) foods, and (4) psychosomatic bases
b. Establishment of dosage by (1) the titration method, (2) severity of patient's symptoms (using high, medium and low dose therapy)
c. Use of specific therapy, nonspecific therapy, and psychotherapy, such as: specific, house dust antigen; nonspecific, staphylococcus toxoid; psychosomatic, search for underlying cause.

III. Importance of constant re-evaluation of therapy and review of running history

IV. Case histories illustrated with colored slides

COURSE 220

Room 781 Period W-5

J. VAN DYKE QUEREAU, M.D.
Reading, Pa.

Practical Physiology of Ocular Movements

This will be a discussion especially of the physiology of those ocular movements which point to the location of a neurologic lesion when they are deranged. Practical applications of the physiology of ocular movements to muscle surgery will be included. Physiologic nystagmus and its influence on pathologic nystagmus from the diagnostic point of view will be demonstrated.

COURSE 221

Crystal Room Period M-5

ALGERNON B. REESE, M.D.
New York

Cataract Extraction

There will be a discussion of the cause and control of vitreous pressure, the incision, the selection of the type of extraction, the mechanism of lens delivery, the diagnosis and combating of untoward occurrences in the postoperative course. In short, this will be an over-all critique of cataract extraction.

COURSE 222

Room 716 Period Th-4

CARL J. RUDOLPH, M.D.
South Bend, Ind.

Chemotherapy: New Types

Because new agents are being developed at such a rapid rate that the ophthalmologist finds it difficult to keep abreast, this course will include a practical review of basic features of pharmacology and therapeutics as applied to ophthalmology. Both the local and systemic uses of the following groups of drugs will be discussed: antibiotics, sulfonamides, fungicides, and parasiticides.

COURSE 223

Room 781 Period T-4

A. D. RUEDEMANN, JR., M.D.
Detroit

Surgery of Vertical Muscles

COURSE 224

Room 710 Period T-5

WALTER Z. RUNDLES, M.D.
Flint, Mich.

Streak Retinoscopy

COURSE 225

Room 724 Period M-6 or T-6

RALPH O. RYCHENER, M.D.
Memphis

The Lacrimal Apparatus

This course will present a general review of the lacrimal apparatus, with special emphasis on the treatment of some of the minor but rather troublesome phases encountered in private practice,

as well as the more dramatic and quite satisfactory methods of tear sac surgery. The office management of congenital stenosis and the more popular techniques of dacryocystorhinostomy will be fully illustrated with slides.

COURSE 226

Room 781 Period M-5 or T-5

HERMAN D. SCARNEY, M.D.
Detroit

Slit Lamp (Biomicroscopy): Its Value in Office Diagnosis

The expensive initial investment in a biomicroscope, which has come to be recognized as an indispensable part of the examining equipment of the clinical ophthalmologist, can return many dividends in accuracy of diagnosis and prognosis, and in indications of possible procedure in treatment afforded by no other means.

The value of routine biomicroscopy in office diagnosis will be emphasized by presenting a series of kodachrome slides illustrating fairly common lesions of the lids, conjunctiva, cornea, anterior chamber, iris and lens. Biomicroscopy of the fundus with the Hruby lens will also be discussed.

COURSE 227

Room 722 Period T-6 or W-6

HAROLD G. SCHEIE, M.D.
Philadelphia

Congenital Glaucoma: Surgical Procedures

The surgical treatment of juvenile and infantile glaucoma will be discussed. The development of goniopuncture and the results obtained with this treatment in cases of juvenile glaucoma will be presented. The author's method of goniotomy for infantile glaucoma will be illustrated by slides and a motion picture. An analysis of the results obtained from goniotomy, goniopuncture, and a combination of the two will be made.

COURSE 228

Room 732 Period W-6

JAMES S. SHIPMAN, M.D.
Camden, N. J.

Scleral Resection

1. The indications for this operation as a primary procedure:
   a. Failure of the detached retina to settle back in place with bed rest
   b. High myopia
   c. Aphakia
   d. Retinal folds or vitreous bands
   e. Failure of less formidable methods
2. Preoperative study and preparation of the patient
3. Operative procedure:
   a. Partial or lamellar type of resection less hazardous and preferable
   b. Anatomic landmarks on sclera, such as position of vortex veins, macula, recti, and oblique muscles
   c. Position, size and shape of the area of sclera to be resected
   d. The operative technique will be illustrated with slides, showing each step from beginning to end and a new technique of folding in portion of sclera
4. Postoperative treatment and management, complications, and results

A new procedure, an enfolding of the sclera, as done by the author is described and illustrated with slides and a motion picture.

COURSE 229

Room 711 Period W-5

G. VICTOR SIMPSON, M.D.
Washington, D. C.

Hemorrhage into the Vitreous: Diagnosis and Management

This course is being given for the first time, and because the management of single or recurrent hemorrhages into the vitreous offers so much of a challenge, the subject should provide an excellent discussion hour.

The first concern in management is to be sure that the blurring of vision has been caused by a hemorrhage. The points of differentiation from (1) rupture of a peripheral retinal cyst, (2) separation of a rosette from the periphery of the retina, (3) rupture of the posterior hyaloid

from its attachment surrounding the optic nerve, and (4) subacute uveitis will be discussed.

Hemorrhage into the vitreous may be caused by a number of ocular and systemic situations. The following table will be offered to reduce errors in etiologic diagnosis:

1. Hemorrhage from tearing of the retina with retinal detachment
2. Hemorrhage from tearing of the retina without detachment
3. Malignant melanoma of the choroid
   a. Eales's disease
   b. Sickle cell disease or sickle cell hemoglobin C disease
   c. Angiomatosis of retina or Von Hippel's disease
4. Retinal Vasculitis
   a. Telangiectasis of retina with or without Coats's disease
   b. Disease of the blood: leukemia, anemia, polycythemia, purpura
5. Systemic diseases
   a. Arteriosclerosis, hypertension
   b. Diabetes

Treatment to aid absorption of the blood in the vitreous will be discussed. Once the cause has been firmly established, the specific treatment that is indicated will be suggested.

COURSE 230

Room 716 Period W-5

BYRON SMITH, M.D.
New York

Fractures of the Orbit

The symptoms and signs of orbital fractures suggest the advisability of roentgen studies. The various advisable projections will be discussed and demonstrated. The approaches to surgical exploration will be projected in slides and motion pictures. The management of late manifestations such as diplopia, enophthalmos, malunited fractures, maxillofacial deformities, lacrimal obstruction, oculorotary disturbances, canthal displacements, blepharoptosis and other common complications, will be discussed during the course.

COURSE 231

Room 706 Period T-4

M. PUIG SOLANES, M.D.
Mexico, D. F.
BY INVITATION

Parasitic Uveitis (Metazoal)

Two metazoal parasitic ocular pictures are at present of practical interest on our continent: cysticercosis and onchocerciasis. Although cysticercosis is now under control in most of the western world, it has not been completely eradicated and cases may sporadically appear. Onchocerciasis at present is of outstanding interest in America: it has been found, up to now, in limited areas of Mexico, Guatemala and Venezuela. However, it may be assumed that neighboring territories with similar ecologic conditions might also be affected. The possibility for the extension of the disease through improvement of communications (roads, plane facilities, etc.) has also been considered. For these reasons the disease must be known by ophthalmologists and sanitary officers in order to discover isolated cases and new endemic foci.

A description of the clinical pictures of cysticercal and onchocercal uveitis is presented; its pathology is discussed and the technique for the removal of intraocular cysticercus is shown in a film.

COURSE 232

Room 715 Period W-5

EDMUND B. SPAETH, M.D.
Philadelphia

Plastic Surgery: Practical Aspects

This course is primarily concerned with the correction of those defects resulting from the treatment of malignant lesions of the lids and/or the orbit. The instruction period is concerned essentially with plastic surgery as related to malignant lesions and is not to consider the defects due to trauma or congenital defects.

COURSE 233

Room 715 Period Th-4

EDMUND B. SPAETH, M.D.
Philadelphia

Complicated Ptosis: Selection of Operation

A large number of cases of congenital

ptosis, unilateral as well as bilateral, are complicated by the presence of other oculomotor anomalies. This constitutes about 50 per cent of all cases. There is a logical sequence of the surgical procedures necessary for the correction of these situations. This is the subject matter of the instruction hour.

COURSE 234

Room 713 Period M-6

HARRY B. STAUFFER, M.D.
Jefferson City, Mo.

Allergic Conditions of the Eye: Differential Diagnosis

The differential diagnosis and treatment of ocular allergy will be illustrated by kodachrome slides and a review of case histories taken from a general ophthalmologic office practice.

Ocular allergy may resemble inflammations of nonallergic origin, such as bacterial and viral infections. Special emphasis will be placed on contact allergy, drug allergy, virus diseases, scleritis and uveitis.

COURSE 235

Room 716 Period W-6

ELLIS H. STEFFENSEN, M.D.
Detroit

Senile Macular Degeneration: Current Therapy

COURSE 236

Crystal Room Period T-4

KENNETH C. SWAN, M.D.
Portland, Ore.

Glaucoma: Value of Drugs Used

In recent years a number of new classes of drugs have been found to alter ocular tension in glaucoma. Also, some new members of previously known drug types are receiving study. In addition, different concepts have been added to our knowledge of glaucoma, mechanism of action of drugs and evaluation of treatment. It will be the purpose of this lecture to discuss recent changes in the rationale of medical treatment of glaucoma as well as to evaluate the more important new drugs.

COURSE 237

Room 726 Period Th-4

EDWIN F. TAIT, M.D.
Norristown, Pa.

Telescopic and Magnifying Lenses for the Visually Handicapped

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COURSE 238

Room 715 Period W-6

I. S. Tassman, M.D.
Philadelphia

Retinopathy in Diabetes

The retinal and vascular changes occurring in the course of diabetes will be described. Certain factors which may have a relationship to the occurrence of the retinopathy in diabetic patients will be discussed. The Kimmelstiel-Wilson syndrome, the vascular changes, the function of the autonomic nervous system and the endocrine system will be analyzed with regard to incidence of retinopathy.

The treatment and management of the person with diabetes and the effect of present-day therapy on the development of retinopathy in the various stages of the disease will be discussed.

COURSE 239

Room 744 Period W-4 or Th-4

FREDERICK H. THEODORE, M.D.
New York

Ocular Therapeutics

An appreciation of the potentialities and the limitations of the agents at our disposal is a prerequisite for effective therapy. Many new and potent drugs are now widely used in ocular therapeutics. Valuable as they are, their introduction has posed therapeutic problems other than the dangers from injudicious use.

A practical clinical approach will be made to the treatment of external diseases of the eye, with a critical evaluation of those drugs, both old and new,

currently used for this purpose. The action of the drugs, indications and specific contraindications for their use, the capricious behavior and unreliability of some of them, and methods for their application will be considered in detail. The importance of vehicles in general, the choice of appropriate ones, and specific problems and dangers inherent in the prescribing of ophthalmic drugs will be stressed. The necessity for differentiating drug reactions due to allergy from drug reactions due to irritations will be discussed from the therapeutic point of view. General principles concerning the treatment of ocular eczemas will be outlined. The entire lecture will be illustrated by kodachrome lantern slides of clinical cases.

COURSE 240

Room 795 Period T-6 or W-6

ALFRED UIHLEIN, M.D.
Rochester, Minn.
BY INVITATION

Neuralgias of the Head: Treatment

Most of the pain about the head and face can be outlined along definite nerve pathways. The most logical treatment is to eradicate the cause, but all too frequently this is impossible. Neuralgia should be distinguished from neuritis. The former is a sharp, intermittent pain along the distribution of a given nerve. Neuritis, on the other hand, produces pain that is continuous and lancinating and frequently is accompanied by tenderness, paresthesia or anesthesia; motor paralysis is present if a mixed nerve is involved. For simplicity in diagnosis and treatment, the neuralgias of the head can be divided into minor and major types. The diagnosis and treatment of facial pain in relation to the major and minor neuralgias will be presented to encourage discussion.

COURSE 241

Crystal Room Period W-4

DERRICK VAIL, M.D.
Chicago

Senile Cataract: Mechanical Factors of Surgery

This course will consist of a description and discussion of the various methods and techniques of cataract surgery, with emphasis on the mechanical principles involved. Time will be devoted to the various steps performed during the operation, leaving out the preoperative and postoperative care of the patient. Principles of various types of incision, instrumentation, a discussion of suture material, and principles of wound healing that have a bearing on the type of incision used will be emphasized. Particular attention will be paid to the application of forceps or erysiphake to the capsule of the lens, and the various types of delivery of the lens will be mentioned. The course will be illustrated with slides and motion pictures.

COURSE 242

Room 777 Period W-6

C. WILLIAM WEISSER, M.D.
Pittsburgh

Repair of Corneal Injuries

Many surgical textbooks, even the most modern, still adhere to rather archaic methods of caring for injured corneas. Textbooks and articles on the subject of the care of the injured or diseased cornea neglect some of the more recent and better methods of treatment. Often a text will advise the excision of prolapsed or exposed iris because of the danger of secondary infection from replacement of this tissue.

For many years it has been possible to replace prolapsed uvea, even though it has been exposed for a long time, and with the addition of modern antibiotics and better surgical care, replacement is now possible and is by far the better procedure. Antibiotics, steroids and other modern agents permit rapid repair without complications. Fibrin film can assist in rapid healing and protection as well as in relief from pain in both inujries and ulcers of the cornea.

Colored photographs of typical cases will be shown, and statistical analyses of patients with varying types of treatment will be presented.

COURSE 243

Room 726 Period M-6

JOHN P. WENDLAND, M.D.
Minneapolis

Chiasmal Lesions

The subject will be introduced by a brief discussion of the anatomy of the chiasmal region. Following this, the course will deal with various types of field defects which chiasmal lesions may present. Associated symptoms and specific causes of chiasmal lesions will be discussed next. Emphasis will be placed upon the fact that the responsibility for early diagnosis of lesions in the neighborhood of the chiasm rests primarily upon the ophthalmologist. Cases illustrating points discussed will be presented. In cases in which the lesion was the result of a neoplasm, a diagram of the chiasm and the tumor will be shown and correlated with the visual fields.

COURSE 244

Room 726 Period W-6

GEORGE N. WISE, M.D.
New York

Retinal Vascular Disease: Its Mechanism and Therapeutic Indications

The embryologic background and the mechanism of new vessel formation in certain vascular diseases of the mature retina will be discussed first. Therapeutic indications, reasons for some therapeutic failures, and indications for new approaches in treatment will be analyzed. Kodachrome slides wil be shown.

COURSE 245

Room 705 Period T-6 or W-6

EVERET H. WOOD, M.D.
Madison, Wis.

Central Retinal Lesions: Diagnosis and Treatment

The course will consist of a short review of the embryology, anatomy, and physiology of the macular region of the eye, followed by a discusion of acute clinic and degenerative macular lesions, laying particular emphasis on macular lesions of the aged and the management of patients suffering from these conditions.

The course will be illustrated by both kodachrome and ordinary lantern-slide illustrations.

CONTINUOUS COURSES — OTOLARYNGOLOGY

COURSE 301

Room 711 Periods Th-1, Th-2

DAVID W. BREWER, M.D.
and
F. BERTRAM BRIESS
BY INVITATION
Syracuse, N. Y.

Voice Therapy:
Medical Management and Dynamics

A two-period course—$4.00

Much discussion among otolaryngologists, voice teachers, phoneticians, speech therapists, voice therapists, and voice scientists centers around methods for the relief of disturbed voice physiology and voice pathology. Our present interpretation of effective treatment for the relief of audible and visible lesions due to vocal abuse is described in this course. Testing methods for evaluation of hyperfunction and hypofunction of the intrinsic and cricothyroid muscles is followed by a consideration of the plan of therapy including all four phases for each patient. The basic factors, such as choice of vowel, pitch, phrase design, and dosage, and their effects on specific muscle pairs are discussed. Changes in the plan for therapy necessitated by the presence of specific lesions are illustrated.

COURSE 302

Room 722 Periods W-1, W-2

COURSE 303

Room 722 Periods Th-1, Th-2

JOHN J. CONLEY, M.D.
JOHN F. DALY, M.D.
and
MAURICE LENZ, M.D.
BY INVITATION
New York

Carcinoma of the Head and Neck:
Diagnosis and Treatment

A two-period course—$4.00

This two-hour course is being presented twice, as Course 302 on Wednesday and as Course 303 on Thursday. **Please select course number according to day on which you wish to attend.**

The course includes an analysis of cancers involving all the major systems of the head and neck area: the various types of malignant tumors involving the epithelium, sinuses, ears, lips, tongue, buccal mucosa, palate, nasopharynx, floor of the mouth, hypopharynx, parotid gland, cervical lymphatics, thyroid gland and cervical esophagus (larynx intentionally omitted because of its inclusion in other courses).

A discussion of the diagnosis of these malignant tumors will be based on the pertinent factors in the history, physical examination, roentgenograms, chemical tests, and various biopsy techniques relative to each case.

Emphasis will be placed on the use of supervoltage in the treatment of malignant tumors of the head and neck.

A discussion of treatment will include the curative effects of various types of surgery and irradiation and combinations of these two techniques. It will also include the worth-while palliative efforts in the management of incurable cancer by surgery, irradiation or combinations of these techniques.

COURSE 304

Room 724 Periods W-2, W-3

JOHN MARQUIS CONVERSE, M.D.
New York

Principles of Nasal Plastic Surgery—
Basic

A two-period course—$4.00

The main steps in the typical corrective nasal plastic operation will be reviewed. The course will be illustrated by slides and motion pictures.

COURSE 305

Room 724 Periods Th-2, Th-3

JOHN MARQUIS CONVERSE, M.D.
New York

Principles of Nasal Plastic Surgery—Advanced

A two-period course—$4.00

This course is more advanced than the preceding one and deals with conditions such as nasal deviations and saddle nose, in addition to the main steps in the typical corrective nasal plastic operation.

COURSE 306

Room 710 Periods T-1, T-2

MEYER S. FOX, M.D.
Milwaukee

ARAM GLORIG, M.D.
Los Angeles

Noise in Industry

A two-period course—$4.00

Topics for Discussion

1. The physical aspects of noise, its measurement, and its effect upon man
2. The medical aspects of hearing loss due to noise exposure
3. The determination of hearing loss and hearing disability resulting from noise exposure
4. The medical-legal aspects of noise deafness
5. Hearing conservation programs in industry

This course has been planned for otolaryngologists who are actively engaged in hearing conservation programs in industry and for any others who are interested in the industrial noise problem. The presentation will consist of an informal panel discussion by members of the Subcommittee on Noise in Industry who have been very active in the field of industrial noise. Emphasis will be placed upon practical measures and a realistic approach to the problem. The presentation will be supplemented by charts, slides and tape recordings taken from actual industrial situations.

Those planning to attend this course who have questions regarding particular problems which they wish to have discussed should submit them by mail or in person before the conference begins. A question period will be provided, and an opportunity will also be afforded anyone in attendance who may wish to relate his experiences in meeting various problems in the field of industrial noise.

COURSE 307

Room 712 Periods T-2, T-3

COURSE 308

Room 712 Periods W-1, W-2

EMIL FROESCHELS, M.D.
New York
BY INVITATION

Speech and Voice Therapy in Partnership with Otolaryngology

A two-period course—$4.00

This two-hour course is being presented twice, as Course 307 on Tuesday and as Course 308 on Wednesday. **Please select course number according to day on which you wish to attend.**

This course will deal with physiology, pathology and therapy of human voice and speech. Since the voice is closely connected with speech, some instruction will be given on speech and on some speech disturbances, for example, hyperrhinolalia (cleft palate speech) and stuttering. Among the voice disturbances, special consideration will be given to those either deriving from or connected with paralysis of the vocal cords. Such paralyses can result not only from thyroidectomy but also from internal causes. A method to differentiate between acute and chronic cases will be shown. Therapeutic methods will be thoroughly discussed.

COURSE 309

Room 721 Periods T-1, T-2

Z. Z. GODLOWSKI, M.D.
Chicago
BY INVITATION

I. Physiopathology of the Endocrine System

II. Enzymatic Mechanism of Allergy as Related to Hormonal Action

A two-period course—$4.00

I

1. Relationship of hypothalamus to autonomic nervous system, endocrine glands and target cells

2. Primary and secondary endocrine disorder: therapeutic and diagnostic importance
3. Strategic position of anterior pituitary lobe and thyroid gland in clinical symptomatology
4. Questions and answers

II

1. Enzymes, their action and their relationship to hormones
2. Enzymatic diseases: enzymatic mechanism of allergy
3. Self-termination of allergic reactions, desensitization by low-dosage method of antigen as seen in enzymatic mechanism of allergy
4. Practical conclusions in antiallergic therapy in office practice based on enzymatic mechanism of allergy
5. Questions and answers.

COURSE 310

Room 721 Periods W-1, W-2

Z. Z. GODLOWSKI, M.D.
Chicago
BY INVITATION

Endocrinopathies: Management of Subclinical and Clinical Forms in Office Practice

A two-period course—$4.00

Diagnosis

1. Diagnostic evaluation by physical examination
2. Choice of laboratory tests and their interpretations
3. Questions and answers

Therapy

1. Advantages and disadvantages of "single" and "multiple" therapeutic agents
2. Etiologic therapy in hormonal disorders
3. Substitution therapy in hormonal disorders
4. Antiphlogistic value of adrenocortical steroids
5. Adjustment of emotional disorders in hormonal disorders related to allergic reaction
6. Questions and answers

COURSE 311

Room 724 Periods T-2, T-3

FREDERICK R. GUILFORD, M.D.
WILLIAM K. WRIGHT, M.D.
Houston, Texas

Permeatal Otologic Surgery

A two-period course—$4.00

It is our purpose to review our experience with the permeatal approach to surgery of the external auditory canal, middle ear and mastoid antrum. The majority of the work has been done directly through the meatus of the external auditory canal without an external incision (permeatal approach), but a small T incision is occasionally required in the roof and posterior wall of the canal in order to attain better visualization. The main subject for consideration will be the techniques and results of stapes mobilization and tympanoplasty. However, additional discussion will include the technique of the hypotympanic approach for tumors of the glomus jugulare and the permeatal approach (Tumarkin) for cholesteatomas of the epitympanic area and mastoid antrum. The permeatal approach for the removal of exostosis of the external auditory canal will also be considered. Slides and motion pictures will be used as instructional aids.

COURSE 312

Room 710 Periods W-1, W-2

COURSE 313

Room 721 Periods Th-1, Th-2

FRENCH K. HANSEL, M.D.
St. Louis

Allergy and Medical Otolaryngology

A two-period course—$4.00

This two-hour course is being presented twice, as Course 312 on Wednesday and as Course 313 on Thursday. **Please select course number according to day on which you wish to attend.**

The problems of medical otolaryngology are varied, multiple and ever changing. In many instances the indications for surgical interference must be evaluated only after medical treatment

and observation. The management of the patient, therefore, is directed to the consideration of disease and loss of function which affect the ears, nose and throat, and related structures. These problems concern allergy, infection, immunity, anemia, malnutrition, dental caries, effects of tobacco and alcohol, endocrine deficiencies, loss of function as manifested by vascular headaches, vertigo and tinnitus, deafness, psychosomatic disturbances and other related conditions.

COURSE 314

Room 711 Periods T-1, T-2

FRED HARBERT, M.D.
Philadelphia

Clinical Audiology

A two-period course—$4.00

The usual and exceptional findings in the three types of deafness, conductive, nerve, and end organ, will be outlined and discussed. Basic principles responsible for these findings will be emphasized, making liberal use of slides illustrating cases which demonstrate these principles. The role of tuning forks, pure tone audiometry, and speech audiometry will be considered from a practical standpoint.

Bone conduction, masking and recruitment will be particularly stressed, mainly by illustrative cases. The main consideration will be diagnosis and the need for various rehabilitative procedures as indicated by diagnostic findings.

COURSE 315

Room 715 Periods T-1, T-2

COURSE 316

Room 715 Periods W-2, W-3

WILLIAM G. HARDY, Ph.D.
MIRIAM D. PAULS, Ph.D.
Baltimore
BY INVITATION

Clinical Audiology for Young Children

A two-period course—$4.00

This two-hour course is being presented twice, as Course 315 on Tuesday and as Course 316 on Wednesday. Please select course number according to day on which you wish to attend.

With infants and preschool children, particularly those with delayed speech, special techniques must be used to evaluate the hearing function and its relation to the child's development and behavior. Several techniques (employing calibrated toys and noise-makers, tuning forks, pure tone and speech audiometry, masking, and the like) will be considered in detail. These range from what is useful in ordinary office practice to procedures involving special facilities.

Particular attention will be given to current "objective" procedures whereby a child is conditioned to respond to test sounds. Some details of management will be discussed, and there will be consideration of the relation between various causal factors and test findings and the development of language and speech in the child.

COURSE 317

Room 711 Periods W-1, W-2

ANDERSON C. HILDING, M.D.
Duluth, Minn.

Microanatomy of the Cochlea: Physiology of Hearing and Its Relation to Hearing Loss

A two-period course—$4.00

Despite the fact that many theories of hearing have been advanced during the past 300 years, no one has yet demonstrated conclusively how we hear. The etiology and pathology of some of the commonest ear complaints are unknown.

In an attempt better to understand the internal ear, the normal anatomy of this structure, as it is presently understood, will be briefly described preparatory to discussing some intensive studies in dissection of the cochlea. These studies elucidate some of the characteristics and anatomic relations of the tectorial membrane and the motion of the cochlear partition. An attempt will be made to answer two questions which are always asked whenever a theory of hearing is postulated: (1) How does stimulation of the hair cells actually take place? (2) How is the stimulation localized when the whole cochlea and everything within it is vibrating with forced vibration in response to sound?

The concepts which will be presented in explanation of these questions have immediate application in the pathology

of perception deafness in general and in acoustic trauma in particular. The 4096 dip, characteristic of the initial perception type of deafness, may be explained on this basis. There are some preventive measures suggested by these findings.

COURSE 318

Room 705 Periods Th-1, Th-2

External Pyramid Reconstruction

A two-period course—$4.00

Th-1—Kenneth H. Hinderer, M.D.
Pittsburgh

Incisions for Approaching Nasal Structures and Methods of Exposure

Adequate exposure of the structures in nasal surgery is very necessary to obtain good results. Incisions should be as few in number as possible and minimal in length, but they should provide maximum exposure in order that every portion of the septum and nasal pyramid may be reached. They also should be planned to provide a minimum amount of postoperative reaction. Each incision has a purpose in attaining sufficient mobility of these structures to reconstruct them and to replace them into their normal contour.

This discussion will present the rationale of each incision. It will be illustrated by kodachrome slides.

Th-2—Ivan W. Philpott, M.D.
Denver

Medial and Lateral Osteotomies and Deficiencies of the Nasal Roof

There are two types of medial osteotomies, intraseptal and intranasal. Each of these can be modified to preserve or to sacrifice the keystone area. Indications for and the technique of these operations will be described. Lateral osteotomies are, in the main, of two types, vestibular and alar. Indications for and techniques of both types will be discussed. Brief mention of other types of osteotomies, such as the external Mosher type, will also be considered. The level of the osteotomy cut in relation to the base line will be discussed. A description of outfracture and infracture and a consideration of how to handle the thickened nasal frontal spine will be discussed. A brief description of deficiencies of the nasal roof with case reports will be given.

COURSE 319

Crystal Room Periods Th-1, Th-2

HOWARD P. HOUSE, M.D.

WILLIAM F. HOUSE, M.D.
Los Angeles

Surgery for Chronic Ear Disease and the Concept of Tympanoplasty

A two-period course—$4.00

The changing concept of surgery for chronic ear disease will be discussed, with emphasis on hearing restoration.

The indications for surgical intervention and the techniques used to carry out this changing concept with regard to tympanoplasty will be presented and fully illustrated.

The importance of proper and adequate postoperative care will be stressed.

COURSE 320

Room 722 Periods T-2, T-3

VARAZTAD H. KAZANJIAN, M.D.
Boston

JOHN MARQUIS CONVERSE, M.D.
New York

EDGAR M. HOLMES, M.D.
Boston

Traumatic Injuries of the Face

A two-period course—$4.00

The symposium on early treatment of facial injuries, to be held during the first period, will cover (1) emergency measures consisting of the control of primary hemorrhage, traumatic shock, and other necessary first aid measures; (2) local examination of lacerations and fractures of the face plus general physical examination; and (3) early treatment of soft tissues, primary and late primary suturing of lacerations, and the immobilization of fractures with special reference to fractures of the nasal, zygomatic and maxillary bones.

The second period will be utilized for a symposium on treatment of deformities of the face of traumatic origin, including discussion of (1) some general principles of reconstructive surgery of the face, and (2) repair of deformities involving soft tissues only, including (a) conspicuous scars without apparent loss of tissue,

(b) defects with definite loss of tissue requiring use of pedicle or skin grafts, (c) special areas such as the eyelids and eyebrows, and (d) stenosis of the nasal passages.

COURSE 321

Room 728 Periods T-1, T-2

COURSE 322

Room 728 Periods W-1, W-2

FRANK D. LATHROP, M.D.

MOSES H. LURIE, M.D.

BERNARD ZONDERMAN, M.D.
Boston

Your Otological Problems

A two-period course—$4.00

This two-hour course is being presented twice, as Course 321 on Tuesday and as Course 322 on Wednesday. Please select course number according to day on which you wish to attend.

This course is presented as an informal discussion of problems of any nature in the field of otology. Since dizziness, deafness and secretory otitis media often pose problems of management, the first part of the allotted time will be spent in brief statements by various members of the panel concerning these subjects. The remainder of the time will be occupied by questions and answers and a general discussion of otologic treatment. It is hoped that all who register for this course will participate in the questions and answers and general discussion. Furthermore, it is hoped that no one will fail to ask a question because it is thought that the problem is too insignificant. All problems assume great magnitude when the answer is not known.

COURSE 323

Room 728 Periods Th-2, Th-3

JOHN R. LINDSAY, M.D.
Chicago

Deafness and Dizziness of Vascular Origin

A two-period course—$4.00

Vascular lesions may affect the auditory and vestibular mechanisms either together or separately and in varying degrees. A lack of factual information as to the nature and location of these lesions has made the diagnosis and interpretation inadequate. A number of experiments on animals have been done in our laboratory which illustrate the possible effect of certain vascular lesions on function. A series of cases also has been selected to illustrate the various clinical types. The discussion will consist of a presentation of clinical types along with the evidence which has been obtained by experimentation.

COURSE 324

Room 731 Periods T-2, T-3

COURSE 325

Room 731 Periods W-2, W-3

WERNER MUELLER, M.D.
Boston

SCOTT N. REGER, Ph.D.
Iowa City

and

ALAN S. FELDMAN, Ph.D.
Syracuse, N. Y.
BY INVITATION

ROBERT E. KLOTZ, M.D.
Boston
BY INVITATION

What the Otologist Should Know About Hearing Aids

A two-period course—$4.00

This two-hour course is being presented twice, as Course 324 on Tuesday and as Course 325 on Wednesday. Please select course number according to day on which you wish to attend.

This will be an informal question-and-answer symposium on hearing-aid problems as they arise in daily otologic practice. The participants are invited to submit such questions as the following:

When does a hard-of-hearing patient need a hearing aid?
What are the comparative merits of bone and air conduction instruments?
What are the limitations of a hearing aid?
Which is the best hearing aid?
How should the patient go about getting a hearing aid?

What can the otologist do to combat high-pressure salesmanship?

COURSE 326

Room 710 Periods Th-2, Th-3

External Pyramid Reconstruction

A two-period course—$4.00

Th-2—Ralph H. Riggs, M.D.
Shreveport, La.

Combined Septum Corrections and Rhinoplastic Procedures

Many patients who have an operation on the nasal septum also need surgical procedures on the external nasal pyramid, the lobule, or both, if physiologic nasal function is to be restored. In this course, types of noses needing such surgical repair are discussed.

Some review of anatomy is essential, but special attention is given to the premaxillary area. A detailed description of the reflections of the nasal mucous membrane, their importance, and the preservation of mucosal attachments is stressed. Several methods of preventing the mucosa from falling into the nasal cavity are enumerated. These safeguards make the combined operation possible.

It is important for the surgeon doing this type of work to see some sequelae of submucous resection, rhinoplasty, and the combined operation. The incidence of sequelae will be minimized if the described precautions are kept in mind when the various parts operated upon are reassembled. Techniques for repair of the septum, the dorsum, the spine and the base of the nose are discussed.

Slides, both kodachrome and black-and-white, will be used to supplement the discussion.

Th-3—Carl B. Sputh, Jr., M.D.
Indianapolis

Management of Nasal Injuries

This lecture will cover the management of nasal injuries by use of surgical principles which will be emphasized in associated courses. It will stress especially the physiologic and anatomic injuries to the nose which were sustained in childhood. The slides will show how early nasal injuries often result in deformities of the nose, faulty dentition, and facial and palatal asymmetries.

COURSE 327

Room 732 Periods T-1, T-2

HERMAN SEMENOV, M.D.
Beverly Hills, Calif.

Ear, Nose and Throat Therapeutics Brought Up to Date

A two-period course—$4.00

COURSE 328

Room 732 Periods W-2, W-3

BEN H. SENTURIA, M.D.

BENARD C. ADLER, M.D.

and

CARL GESSERT, Ph.D.
BY INVITATION
St. Louis

Tubo-Tympano-Mastoiditis

A two-period course—$4.00

For some time the many varieties of effusions in the middle ear have been under investigation. Diagnostic criteria have been submitted to critical evaluation. The chemical, bacteriologic and cytologic properties of the fluid, the histopathologic changes in the mucoperiosteal lining of the tympanum, the audiologic picture, allergic factors, and radiologic mastoid findings have been assessed.

The therapeutic approach has included the development of special instruments for aspiration of the middle ear fluid. Various enzymes to solubilize the protein-carbohydrate complex in the fluid have been tested. Finally a statistical review of the laboratory findings and the results of clinical therapy in approximately 200 patients will be presented.

COURSE 329

Room 732 Periods Th-2, Th-3

HANS von LEDEN, M.D.

and

PAUL MOORE, Ph.D.
BY INVITATION
Chicago

Applied Laryngeal Physiology

A two-period course—$4.00

The basic fundamentals of laryngeal

function will be reviewed, and the principal theories of voice production will be discussed in the light of recent investigations. The application of physiologic principles to the diagnosis and treatment of laryngeal disorders will be stressed.

Newer additions to the armamentarium of the laryngologist will be evaluated.

The entire presentation will be supported by audiovisual material, including ultraslow motion pictures of the larynx in action.

COURSE 330

Room 733 Periods W-1, W-2

COURSE 331

Room 733 Periods Th-1, Th-2

THEODORE E. WALSH, M.D.
St. Louis

What Can Be Done For Deafness

A two-period course—$4.00

This two-hour course is being presented twice, as Course 330 on Wednesday and as Course 331 on Thursday. **Please select course number according to day on which you wish to attend.**

The problems of relieving deafness, including the efficacy or failure of various forms of treatment and surgery, will be considered. The value of hearing aids and rehabilitation measures for cases which cannot be helped by medical or surgical means will be discussed. The apparent success of quackery will be explained. The members of the course are encouraged to submit questions and to join actively in an informal discussion of the subject.

COURSE 332

Room 734 Periods W-2, W-3

RUSSELL I. WILLIAMS, M.D.
Cheyenne, Wyo.

WALTER J. AAGESEN, M.D.
Anderson, Ind.

Septolobular Considerations in Nasal Surgery

A two-period course—$4.00

The course will be divided into two sections. The first hour will deal with complications of septal surgery: (1) saddling of the nasal dorsum; (2) widening and flaring of the nostrils; (3) subsequent perforations; (4) atrophy; (5) failure to give lasting relief of symptoms for which the operation was performed, and (6) retraction of the columella.

A suggested method of examination and detailed records, including photographic and operative, will be described.

The second hour will be devoted to surgery of the nasal septum and lobule, using the method advocated by Dr. Cottle. Time permitting, other techniques will be explained.

COURSE 333

Room 734 Periods T-2, T-3

COURSE 334

Room 734 Periods Th-2, Th-3

WALTER P. WORK, M.D.
San Francisco

Techniques in Wide Field Laryngectomy

A two-period course—$4.00

This two-hour course is being presented twice, as Course 333 on Tuesday and as Course 334 on Thursday. **Please select course number according to day on which you wish to attend.**

This course is designed primarily for those persons who are in training in otorhinolaryngology and for those who have shown some interest and aptitude in neck surgery.

The detailed step-by-step techniques in wide field laryngectomy will be emphasized by means of lantern slides and colored motion pictures. The approach to surgical intervention in this region of the neck will be further stressed according to fascial planes and pertinent anatomic structures as worked out using fresh cadaver material, cross-section studies, and techniques and procedures in the operating room. The low collar incision which the author uses will be illustrated.

INDIVIDUAL COURSES — OTOLARYNGOLOGY

COURSE 401

Room 716 Period W-1

LUCIAN W. ALEXANDER, M.D.
New Orleans

The Adenoid Problem

There is no operation in surgery so badly done in such a large percentage of cases as the adenoid operation. A discussion of the many techniques, failure in results, postoperative treatment to avoid middle ear infections, management of adenoid remnants, and case histories will be presented.

Kodachrome slides will be used.

COURSE 402

Room 721 Period Th-3

VICTOR R. ALFARO, M.D.
Washington, D. C.

Fullness in the Ear: Differential Diagnosis

One of the commonest symptoms in otologic practice is fullness in the ear. This is usually thought to indicate that we are dealing with disorders of the conductive mechanism in the external canal, middle ear, or eustachian tube. Careful appraisal of patients with fullness in the ear, however, reveals that it is a very common symptom of early labyrinthine hydrops. In advanced labyrinthine hydrops the diagnosis is self-evident because of the involvement of the vestibular apparatus as well as the cochlea. Early recognition, therefore, is most important for the establishment of early therapy that will prevent the mild hydrops from becoming severe. The symptomatology, audiometric picture, differential diagnosis and treatment will be discussed.

COURSE 403

Room 716 Period W-2

JACK R. ANDERSON, M.D.
New Orleans

Rhinoplasty: Practical Considerations

The purpose of this course is to discuss certain preoperative and postoperative procedures which have been found to lessen morbidity following rhinoplasty. Certain variations of technique which have been found to simplify the procedure will also be discussed.

COURSE 404

Room 728 Period Th-1

ALBERT H. ANDREWS, JR., M.D.
Chicago

Pulmonary Function Studies: Their Practical Importance to the Bronchologist

Pulmonary function studies furnish significant information to the bronchologist who is concerned with diagnosis and management of bronchopulmonary disease. Correlation of pulmonary function studies and bronchoscopic findings enables the bronchologist to better evaluate pathologic processes and altered physiology, and to supply chest physicians and surgeons with information, evaluations, and therapeutic procedures not otherwise possible.

The pulmonary function studies used in this presentation comprise chest fluoroscopy and spirometric measurements of quiet breathing, vital capacity, and maximum breathing capacity. The spirometric tests are done with air and oxygen and after such therapeutic procedures as bronchodilator drug administration and pressure breathing.

COURSE 405

Room 716 Period T-1

BEVERLY W. ARMSTRONG, M.D.
Charlotte, N. C.

The Use of Vinyl Plastic Tubing in the Treatment of Chronic Secretory Otitis Media

In the past fifteen years we have observed an increase in the incidence of chronic secretory otitis media. It is the most common cause of impaired hearing in children. Experience in ventilating the

middle ear with indwelling plastic tubing will be presented and the results analyzed. The lecture will be illustrated with a motion picture and lantern slides.

COURSE 406

Room 716 Period T-2

RALPH A. ARNOLD, M.D.
Durham, N. C.

Destructive Lesions of the Temporal Bone, Benign and Malignant, Proved by Pathologic Specimen or Autopsy

A classification of destructive lesions of the temporal bone will be presented. Common symptoms of such lesions, including hearing loss, tinnitus, otorrhea and otalgia, will be discussed. The use of roentgenograms, biopsy, and exploration in differential diagnosis will be considered.

COURSE 407

Room 716 Period T-3

JOSEPH P. ATKINS, M.D.
Philadelphia

Diseases of the Trachea: Diagnosis and Management

The trachea constitutes an area in which diagnostic error is common. Many of the lesions simulate laryngeal difficulties but cannot be seen by the laryngologist. Roentgenographic studies of this area, likewise, frequently show no evidence or abnormality.

Some of the lesions which have produced diagnostic dilemmas will be discussed. Diagnostic methods, both radiologic and endoscopic, will be considered. Therapeutic measures will be outlined, including the role of tracheotomy and plastic correction of tracheal diseases.

COURSE 408

Room 721 Period W-3
or or
Room 716 Period Th-3

SHIRLEY HAROLD BARON, M.D.
San Francisco

Interesting Problems in Otolaryngology and Their Management

Varied ear, nose and throat problems, their management and results, will be illustrated with case presentations, with the thought that each might possibly serve as a pattern for the management of similar conditions. Some examples are (1) pituitary cyst visualized and treated via the transseptalsphenoidal route; (2) unusual problem of conduction deafness in a child; (3) true cholesteatoma of the skull; (4) congenital atresia (agenesis) of the ear canal with supernumerary auricles; (5) carcinoma of the tongue, completely intralingual; and (6) acute glossitis.

COURSE 409

Room 713 Period T-2 or Th-2

OSCAR J. BECKER, M.D.
Chicago

Plastic Surgery for Protruding Ears

An original technique for correcting protruding ears is to be presented. This method has proved highly satisfactory in reproducing the normal contours of the auricle and in setting the ear back to the head at the proper angle.

The anatomy of the external ear, the etiology and pathology of protruding ears, and a historical survey of operative procedures will be included in the discussion.

COURSE 410

Room 777 Period T-3
or or
Room 722 Period W-3

RICHARD J. BELLUCCI, M.D.
New York

Surgery of the Stapes and Oval Window: Basic Considerations

The surgically important anatomic characteristics of the tympanic membrane, stapes, oval window, and other structures in the operation for mobilization of the stapes will be discussed.

The technical considerations involved in performing the operation on the stapes and oval window will be discussed. An evaluation of the advantages and limitations of this surgical procedure will be presented.

COURSE 411

Room 726 Period T-1

NATHAN A. BOLOTOW, M.D.
Providence, R. I.

Rhinoplasty: Recent Advances

Any applied art, such as rhinoplasty, becomes obsolete within a few years because of the constantly increasing information, the modification of the surgeon's view, and his greater experience. An attempt will be made to present the newer concepts and techniques in the process of shortening the nose, modeling the lobule, narrowing the nasal pyramid, and hump removal. Unsolved problems in rhinoplasty will be discussed.

COURSE 412

Room 712 Period T-1 or W-3

JOHN E. BORDLEY, M.D.
Baltimore

Deafness in the Infant and Preschool Child: Etiology

This hour will be devoted to information which has been assembled over the past six years regarding a large group of preschool children with severe communicative handicaps. Special emphasis will be placed on the etiologic factors that apparently have been associated with the hearing problem. Correlation will be made of the type of hearing loss with the etiologic factor under consideration. There will be discussion of the type of history and the type of examination to be undertaken by a clinician to help in the diagnosis of hearing loss in such children.

COURSE 413

Room 711 Period W-3

DAVID W. BREWER, M.D.

and

F. BERTRAM BRIESS
BY INVITATION
Syracuse, N. Y.

Laryngeal Anatomy and Phonatory Laryngeal Physiology

Current concepts of laryngeal physiology are broadening rapidly. Relating these advances to intimate laryngeal anatomy is difficult even for the practicing otolaryngologist. A review of this anatomy and its function during phonation is presented in this course. It should serve as a timely introduction to the subsequent two-hour course (Course 301) in voice therapy.

COURSE 414

Room 777 Period W-1

FRIEDRICH S. BRODNITZ, M.D.
New York

Actor and Singer as Patients of the Otolaryngologist

Singers and actors form a group of growing importance in the practice of the laryngologist. To handle these patients well requires an understanding of the techniques involved in the professional use of the voice and of the medical, occupational and psychological problems of the artist.

A review of this field will be presented by dealing with the following topics of practical importance:

1. Check-up examination of the vocal organs
2. Technical problems of professional singing and speaking
3. Infection in the vocal organs of the artist
4. Evaluation of local treatments
5. Handling of emergencies
6. Judging the fitness to perform
7. Psychology of the artist-patient
8. Differential diagnosis of functional voice disturbances

COURSE 415

Room 713 Period W-3

HENRY A. BROWN, M.D.
Rochester, Minn.

Cerebellopontine Angle Tumors: Otologic Evaluation

COURSE 416

Room 713 Period W-1

RICHARD A. BUCKINGHAM, M.D.
Chicago

A Clinic in Otoscopic Diagnosis

This course in basic otoscopy will

show, by means of colored photographs of the eardrum, the characteristic findings in common ear diseases.

The presentation will demonstrate the normal anatomy of the middle ear which the otologist uses for stapes mobilization and which he can see through the translucent and perforated eardrum.

The course will place special emphasis on the problem of diagnosing serous and secretory otitis in the school child whose dysfunction has been revealed by the hearing survey, since the otoscopic findings in this disease are often subtle and confusing.

It will stress the diagnostic pathognomonic otoscopic findings of cholesteatoma of the middle ear along with related pathologic changes in the mastoid.

Finally, it will include otoscopic visualizations of glomus tumors, traumatic perforations, and natural and surgical tympanoplastics.

COURSE 417

Room 715 Period T-3 or W-1

NORTON CANFIELD, M.D.
New Haven, Conn.

Speech Audiometry for the Practicing Otologist

The advantages of speech audiometry, as aided by new electronic instruments, will be compared to those of pure tone audiometry as a practical tool for determining auditory acuity.

The techniques used in speech audiometry will be discussed.

The value of the speech audiometer in testing hearing aids will be stressed, and cases in which it has proved its worth will be cited.

Use of the speech audiometer in testing speech reception and auditory discrimination will be explained. The psychological insight concerning the patient gained when the otologist does the testing himself will be pointed out.

The speech audiometer has proved even more successful in testing the hearing of children, and methods for testing and observing the reactions of young children to speech sounds will be described.

Finally, mention will be made of the advantages of this instrument in tests for malingering.

COURSE 418

Room 732 Period W-1

ALBERT A. CINELLI, M.D.
New York

Physiologic Rhinoplastic Surgery

When the patient reports symptoms of altered nasal physiology, it is of paramount importance to ascertain the seat of the disturbance. Is alteration of the cartilaginous elements of the nares responsible, is there some other causative factor, or is the disturbance due to a combination of causes? Precise etiologic evaluation is essential to the choice of therapeutic measures.

Correction of the altered anatomic elements in the cartilaginous vault of the nose requires a basic understanding of plastic principles. With proper application of these, the distorted or asymmetrical parts can be restored to the normal anatomic pattern, thereby facilitating even ventilation of the nose and so contributing to physiologic function.

COURSE 419

Room 724 Period W-1 or Th-1

LOUIS H. CLERF, M.D.
St. Petersburg, Fla.

Causes of Hoarseness with Particular Reference to Treatment

This course will be devoted to a brief consideration of the symptom "hoarseness" and the diagnosis of conditions producing it.

Diseases of the larynx will be discussed, especially from the standpoint of treatment, and many of the more common typical and atypical laryngeal lesions will be shown on kodachrome slides and in a motion picture.

COURSE 420

Room 777 Period T-1
or or
Room 715 Period Th-1

CLAUDE C. CODY, III, M.D.
Houston, Texas

Eustachian Tube: Management of Pathologic Conditions

Management of pathologic conditions

of the eustachian tube is a subject that confronts every practicing otolaryngologist. Every physician, from the youngest to the oldest, sees countless numbers of patients with complaints referable to the eustachian tubes. Unfortunately, many symptoms are erroneously attributed to the eustachian tube when this is not the real seat of trouble.

A working classification of lesions of the eustachian tube, suppurative and nonsuppurative, in both the young and old, will be offered. Kodachrome slides will be shown demonstrating the eardrums of children which show various stages of retraction and various stages of effusion. The relationship of such conditions to hearing will be stressed. Management, including adenoidectomy, myringotomy with suction, inflation, and the possible use of radium and roentgen therapy, will be covered. Our changing concepts regarding suppurative otitis media and serous otitis media and their relationship to hearing will be developed.

Serous otitis media and adhesive otitis media, and the problems they present in adult patients, will be dealt with along with various methods of management.

Vertigo and its possible relation to tubal obstruction will be reviewed. Special emphasis will be placed on office management of tubal obstruction. The methods for its diagnosis and treatment will be thoroughly covered. A short motion picture on equipment and technique used in tubal obstruction in routine office practice will be shown.

COURSE 421

Room 713 Period T-1

WESLEY E. COMPERE, JR., M.D.
Los Angeles

Radiologic Examination of the Mastoid, Middle Ear, and Eustachian Tube

The equipment, positions, and techniques necessary for the visualization of disease in the tympanic cavity, attic, and aditus will be described, as well as the radiologic methods of evaluating function of the eustachian tube. When possible, the radiographic findings will be correlated with the surgical findings, procedures, and results.

COURSE 422

Room 711 Period T-3

DONALD A. CORGILL, M.D.
Dallas

Radical Hypopharyngeal Surgery With Unilateral or Bilateral Neck Dissection

Patients when seen by the laryngologist for the first time are often suffering from advanced stages of carcinomatous disease with local metastasis already present. A one-stage surgical procedure adequately encompassing all malignant tissue, together with methods of primary or secondary reconstruction, immediate and long-term postoperative results, complications and methods of dealing with them, will be described with the aid of colored slides and colored motion pictures of the operation and of the complications. Time-sequence photography has been applied to the resolving complications. The results of such surgical procedures during a ten-year experience will be presented.

COURSE 423

Room 713 Period W-2

LAWRENCE S. CRISPELL, M.D.
Joplin, Mo.

Otolaryngologic Allergy in Children

Diagnosis and treatment of pediatric allergy as it pertains to the practice of the otorhinolaryngologist will be discussed. An effort will be made to show how such treatment will fit easily into everyday office practice. Allergy and its relationship to recurring colds, sinusitis, tonsillectomy, adenoidectomy, deafness and bronchitis will be discussed.

COURSE 424

Room 728 Period T-3 or W-3

DAVID D. DeWEESE, M.D.
Portland, Ore.

The Problem of the Dizzy Patient

This course will include a discussion of the factors to be taken into consideration in making a differential diagnosis of the patient who comes to the physician

with the complaint of "dizziness." There will be remarks on the importance of certain facets of history taking. There will also be a discussion of nystagmus and of the value and interpretation of labyrinthine tests. A workable outline of those diseases and conditions which must be taken into account when considering the symptom of dizziness will be presented. An attempt will be made to keep in mind those practical points which are of value in differential diagnosis of this symptom in everyday practice. Treatment of certain types of dizziness and vertigo will be considered.

COURSE 425

Room 726 Period W-3

JOHN T. DICKINSON, M.D.
Pittsburgh

Facial Injuries: Basic Problems and Their Treatment

Practically every otolaryngologist is called upon to treat a patient with a recent facial injury. The nature of the initial repair determines the difference between functional and esthetic restoration on the one hand and loss of function with deformity on the other.

While primary repair is best performed prior to swelling and infection, it should not be done without a complete evaluation of the patient and a detailed knowledge of the local damage. All too frequently, a laceration is closed over a deformed skeletal structure, a severed parotid duct, or a lacerated facial nerve. With this in mind, facial fractures will be discussed in some detail along with the repair of other deep structures.

The injuries themselves are divided into three general categories.

The first group comprises those ideal patients in whom the repair can alleviate the necessity for secondary correction. The discussion is concerned with the meticulous cleansing, debridement, and closures similar to that utilized in many secondary repairs. This also includes the use of relaxation incisions and local flaps which are utilized to overcome tension and to facilitate closure.

The second group of cases comprises those injuries in which there is insufficient viable tissue to permit a good primary esthetic repair. In this group, it is the objective to minimize secondary deformities and to make later repairs more feasible. Of prime concern is the restoration of all tissues to their proper anatomical position.

The third group includes those individuals in whom the repair is not limited by the lack of viable tissue but by the neurologic and general status of the patient. The problem of preserving life and conserving tissue in these patients is greatly facilitated by the very judicious repair of facial injuries. This has been greatly neglected in the past.

COURSE 426

Room 705 Period W-3 or Th-3

JOHN B. ERICH, M.D.
Rochester, Minn.

Fractures of the Facial Bones

This course will deal with fractures involving the mandible, maxilla, malar and nasal bones. The methods of treatment which have been found most effective at the Mayo Clinic will be stressed, and classifications which facilitate the management of some of these traumatic injuries will be discussed.

COURSE 427

Crystal Room Period T-1 or W-1

J. BROWN FARRIOR, M.D.
Tampa, Fla.

Stapes Operability in 3-D

This course demonstrates in a series of three-dimensional photographs the pathologic indications for stapes surgery and for fenestration surgery. For stapes surgery, the anatomy and pathology of the stapes are classified into favorable, unfavorable and inoperable. The course is divided into four parts: (1) the types of stapes which are favorable for the stapes operation; (2) the types which are unfavorable; (3) the types which are inoperable; and, finally, a series of postmobilization failures showing the causes of refixation and the indications for the fenestration operation. Varied surgical attack on the stapes is indicated for each type of pathologic involvement. The goals of the course are to define the pathologic indication for the stapes operation, the

pathologic limitations for such procedures, and the pathologic indication for the fenestration operation.

COURSE 428

Crystal Room Period Th-3

J. BROWN FARRIOR, M.D.
Tampa, Fla.

Tympanoplasty in 3-D

The pathologic changes found in a series of tympanoplasties are shown to demonstrate the minute pathologic variables which influence surgical judgment and surgical technique in the restoration of hearing in tympanoplastic operations. Three-dimensional photography is used to demonstrate the interrelationship of the middle ear structures. First, the course will cover a series of large central perforations and their closure by myringoplasty; the tympanic splint is advocated. Second, the course will cover a series of cases complicated by varying degrees of cholesteatoma necessitating surgical procedures on the mastoid, and tympanoplasties of types II, III, IV, and V. The causes of success and failure are discussed.

COURSE 429

Room 727 Period T-1

GLASSELL S. FITZ-HUGH, M.D.
Charlottesville, Va.

The Salivary Glands: Common Disorders

A classification of disorders of the salivary glands will be submitted for consideration. Recognition, diagnosis, and treatment of some of the more commonly encountered ones will be discussed. No effort will be made to consider the more unusual conditions. Pertinent facts will be illustrated by projected slides, and some of the material will be presented in printed form to the members attending the course.

COURSE 430

Room 727 Period T-2

THOMAS W. FOLBRE, M.D.
San Antonio

Discarding Old Ideas in Otolaryngology

What seem to me to be the most common basic errors in ordinary otolaryngologic practice today will be enumerated. Errors in fundamental concepts of clinical pathology show that we have not made enough basic changes in thinking. Old ideas of the anatomic era appear in our thinking without our realizing it. Instances revealing that we still do not appreciate the importance of ventilation and drainage in mastoid and sinus disease and the importance of vascular disease in headache and neuralgia will be brought out. Wrong thinking on external otitis will be emphasized.

COURSE 431

Room 727 Period T-3 or W-3

EDMUND P. FOWLER, JR., M.D.
New York

Facial Paralysis and Tics

This course will include discussion of the following points:

1. Etiology of neuritis of the seventh nerve
2. Bell's palsy
3. Traumatic injuries of the facial nerve, including those instant to fracture of the temporal bone
4. Tumor invasion

Special attention will be paid to the pathologic changes incident to repair and methods of decompressing and grafting the nerve. There will also be a discussion of the medical management of Bell's palsy, postrecovery associated movements, and involuntary twitches or tics.

COURSE 432

Room 724 Period T-1
or or
Room 722 Period Th-3

A. C. FURSTENBERG, M.D.
Ann Arbor, Mich.

Nasal Obstruction: Management

A discussion of nasal obstruction will stress the reflex and inflammatory symptoms of this disorder. Particular emphasis will be placed upon the role of the turbinates in nasal obstruction and its symptoms. Allergic factors will be referred to in a consideration of adequate and effective treatment.

COURSE 433

Room 706 Period T-1

WARREN H. GARDNER, Ph.D.
Cleveland
BY INVITATION

Practical Voice Therapy

Defective voice production will be classified according to the cause of dysfunction of the vocal cords: abnormal functioning of the overlaid biologic and psychophysiologic processes, or lesions that arise on or near the glottal margins of the vocal cords or that prevent adequate approximation. Methods of therapy will be presented which have been successful in eradicating those aspects of malfunction that are responsible for certain deviations and in bolstering surviving functions to supplement actions or parts not capable of complete restoration. Recordings will be generously used to illustrate types of problems and improvement.

COURSE 434

Room 706 Period Th-1

ARAM GLORIG, M.D.
Los Angeles

The Otolaryngologist and Hearing Aid Selection

The purpose of the course will be to answer many of the questions surrounding selection of a hearing aid, especially those which the "hearing loss patient" directs to the physician when he is informed that a hearing aid will be necessary.

COURSE 435

Room 777 Period W-2
or or
Room 712 Period Th-1

IRVING B. GOLDMAN, M.D.
New York

Correction of the Deviated Nose

Reparative surgery for the deviated nose improperly carried out may change a moderate or severe deformity into a major defect. This causes physiologic disturbances superimposed on unsatisfactory esthetic results. The deviated nose is invariably associated with a deflected septum; both can be advantageously corrected at one operation by the procedure to be outlined. Restoration of normal intranasal as well as extranasal contour of the deviated nose is accomplished with a technique based on the principle of shifting displaced parts while maintaining support of the basic areas. Correction of the deviated nose with avoidance of "saddling," drooping of the tip and retraction of the columella can thus be achieved.

COURSE 436

Room 706 Period W-1

ROBERT L. GOODALE, M.D.
Boston

Rationale of Surgery of the Frontal Sinus

In this course the subject of frontal sinus surgery will be reviewed from the viewpoint of changing concepts due to more recent knowledge of the physiology of the nasal sinus mucous membrane, especially in regard to the flow of mucus and the action of the cilia, the increasing number of bacteria and the role of antibiotics to control them, and improvement in surgical technique not only in regard to training of personnel but improvement of instruments. A discussion of techniques for medical and surgical relief of acute sinusitis and consideration of the indications for radical surgical intervention will be presented.

COURSE 437

Room 710 Period T-3 or Th-1

VICTOR GOODHILL, M.D.
Los Angeles

Stapes Mobilization: The Peribasal Monitored Technique

Since the surgical approach of stapes mobilization is a therapeutic attack on a number of diseases involving the oval window (loosely called otosclerosis), it is necessary that the surgical techniques be varied to meet the pathologic changes specifically encountered.

Accordingly, my personal surgical approach in stapes mobilization involves a methodical monitored anatomic approach utilizing a number of instruments and a

number of maneuvers individually selected to meet the special problems encountered. Thus, the technique may be either transincudal, transcapitular, transcrural, or transfootplate. A number of instruments are necessary to implement these various approaches. These include both digitally controlled and engine-controlled instruments.

The surgical procedure is always monitored by the nomographic technique of surgical audiometry.

Surgical instruments will be demonstrated along with magnifying, illuminating, and audiometric equipment.

COURSE 438

Room 713 Period T-3

ARTHUR J. GORNEY, M.D.
Boston

Esophageal Strictures: Prevention and Treatment

The proper use of bougies in the prevention and treatment of esophageal strictures is one phase of otolaryngic practice which is very often neglected.

The early treatment of burns of the esophagus and the prevention of stricture formation in such cases by the proper use of mercury-filled bougies will be considered. The management of cases in which stricture has already formed after the ingestion of lye or other caustic substances will also be discussed in detail.

The pathogenesis, prevention, and treatment of strictures of the esophagus, including those due to causes other than burns, such as that found in peptic esophagitis and in some other interesting and unusual conditions, will also be discussed. Emergency treatment and follow-up management, with particular stress placed on the use of various types of esophageal bougies, will be presented.

COURSE 439

Room 750 Period T-1

EUGENE L. GRANDON, M.D.
Iowa City
BY INVITATION

Flaps and Grafts in Head and Neck Surgery

This course is designed to review simple and practical approaches in reconstruction of defects about the head and neck as a result of injury or tumor. Preoperative and postoperative care when reconstruction calls for the use of grafts will be discussed. Attention will be given primarily to soft-tissue repair. Cartilage and bone grafts will be mentioned. Illustrations from actual cases will be employed to describe each procedure.

COURSE 440

Room 712 Period Th-2

FREDERICK R. GUILFORD, M.D.
WILLIAM K. WRIGHT, M.D.
Houston, Texas

Controlled Healing of Mastoid and Fenestration Cavities

In this course a technique which allows for rapid, complete healing of mastoid and fenestration cavities will be described.

By use of this technique, the size of the cavity, growth of granulations and epithelization are controlled. The resulting small cavities are completely lined with a healthy keratinized layer of squamous epithelium within six weeks postoperatively in 90 per cent of the cases.

The small postoperative mastoid or fenestration cavity in a sclerotic mastoid heals more readily than a large cavity which has resulted from an operation on a well pneumatized mastoid. We employ obliterative techniques to ensure a small cavity in either a fenestration, modified radical mastoidectomy or tympanoplasty when the operation is performed on the well pneumatized mastoid. The cells in the well pneumatized fenestration cavity are obliterated by the use of cartilage chips, which are used to fill the various cell groups. In modified radical and radical mastoidectomies, done in the presence of moderate to marked pneumatization, the lower portion of the cavity is obliterated by removal of the mastoid tip and the use of a soft tissue flap.

Secondary skin grafting is employed two weeks following operation, routinely in fenestrations and in the large majority of radical, modified radical and tympanoplasty operations, in order that the healing may be controlled. The sec-

ondary skin grafting technique will be illustrated by slides and a motion picture.

COURSE 441

Room 733 Period T-1

MERLE L. HALE, D.D.S.
Iowa City
BY INVITATION

Fractures of the Jaws: Fundamentals in Diagnosis and Treatment

Fractures of the mandible and maxilla are usually complicated by their close anatomic association to the oral cavity, the nose, orbits and sinuses, and by the presence or absence of teeth in the jaw fragments. Simply to immobilize a fractured jaw is not adequate treatment in many cases. Functional occlusion when full dentition is present or satisfactory interarch relationships in edentulous cases must be re-established and maintained. A fracture that has not been properly aligned may unite, but the patient may become a dental cripple. Some diagnostic and therapeutic procedures for these complicated injuries will be discussed.

COURSE 442

Room 733 Period W-3

MERLE L. HALE, D.D.S.
Iowa City
BY INVITATION

Cysts of the Jaws and Mouth: Diagnosis and Treatment

Cysts of the jaws and mouth are classified according to their anatomic position and pathogenesis. Frequently cysts not of dental origin are mistakenly associated with these radiographic and clinical findings, and are unnecessarily extracted. This discussion will include a review of the classification of cysts associated with the oral region together with some methods for establishing a differential diagnosis. Some treatment concepts and surgical principles will also be discussed.

COURSE 443

Room 727 Period W-1

HERBERT P. HARKINS, M.D.
Philadelphia

Routine Office Management of Allergic Patients

The modern otolaryngologist daily sees patients who are suffering from allergies of the ear, nose and throat. It is essential that he be able to diagnose these conditions accurately and to outline effective and complete therapy.

The essential features of the following procedures will be discussed:

1. History taking
2. The clinical examination of the ear, nose and throat
3. Necessary laboratory studies to be performed in the office
4. Skin testing
5. Desensitization, both standard and high dilution
6. Elimination diets
7. Office surgical procedures

The course will be illustrated by lantern slides which show necessary equipment and techniques.

COURSE 444

Room 727 Period W-2

JAMES A. HARRILL, M.D.
Winston-Salem, N. C.

Cancer of the Maxillary Sinus

This course is designed to present signs, symptoms, roentgenographic findings, surgical treatment and irradiation of cancer of the maxillary sinus. The surgical resection of the maxilla will be demonstrated by a colored motion picture. Intra-antral and supplemental external cobalt irradiation will be discussed. Various steps in the construction of a facial prosthesis will be outlined. If any time remains, a general discussion will follow.

COURSE 445

Room 726 Period T-3

VERLING K. HART, M.D.
Charlotte, N. C.

Nonmalignant Lesions of the Chest with Emphasis on Extraesophageal Causes of Dysphagia

This is a clinical review of nonmalig-

nant lesions. Adenomas are presented, showing results of endobronchial treatment. It is demonstrated, however, that ultimate extrabronchial extension must be expected. Importance of differential diagnosis between adenoma and cylindroma is stressed. Mediastinal and bronchial cysts are presented together with some other congenital anomalies. Extraesophageal lesions causing dysphagia are discussed. These are pharyngoesophageal diverticula, diaphragmatic herniations and cardiospasms. The importance of the differential diagnosis between cardiospasm and carcinoma of the cardia is emphasized.

COURSE 446

Room 726 Period T-2

ROBERT HENNER, M.D.
Chicago

Functional Surgery of the Middle Ear: Principles

This course will cover the changes in the middle ear, especially in chronic suppurative disease, which should be considered in determining preoperatively the type of hearing result which can be obtained. It will include explanations of the value of the acoustic probe in studying the ossicular transmission system. It will also cover the various diseases. The operative approaches used to obtain maximum postoperative hearing will be discussed.

Among the procedures under consideration will be myringoplasty, tympanoplasty, columellar grafts, and round window or cavum minor grafts.

The guiding principle behind this course is that in every conductive deafness, be it otosclerosis, congenital atresia, or suppurative disease, there is potential improvement of hearing.

COURSE 447

Room 731 Period T-1 or W-1

JEROME A. HILGER, M.D.
St. Paul, Minn.

Office Diagnostic Methods and Treatments

Diagnostic procedures in sequences valuable in the otolaryngologic office examination comprise the major portion of the hour. References to therapy will be in general terms rather than specific formulas.

COURSE 448

Room 732 Period T-3

FREDERICK T. HILL, M.D.
Waterville, Maine

Paranasal Sinuses: Management of Chronic Conditions

The management of chronic disease of the sinuses has changed materially during the past four decades largely because of a better appreciation of nasal physiology, the advent of chemotherapy and antibiotics, and a general appreciation of the allergic state, endocrine dysfunctions, etc. Often these cases require more complete study than is possible in the usual otorhinolaryngologic examination alone. Importance of environmental and constitutional factors must be recognized. This has tended to a more rational and conservative approach to these problems. Although less radical surgical intervention is practiced now, there are still indications, at times, for operative procedures which, in some minds, have gone into the discard.

The course will include a discussion of the problem of antroalveolar fistula.

COURSE 449

Room 706 Period T-2 or W-3

RAYMOND L. HILSINGER, M.D.
Cincinnati

Vascular Headaches

In the far past all complicated headaches were considered migraine. In the more recent past, since the work of Horton, Wolff and Friedman, much has been done to classify the various types of vascular headaches. However, the pendulum, as usual, has swung too far to the other side, and now there is far too much classification. If this continues, each little cranial artery will have its own headache syndrome.

In this course a very simple classification of vascular headaches will be proposed, and general diagnosis and treatment of both vasodilating and vasospastic

headaches will be discussed. The symptomatic and prophylactic aspects of treatment will be considered.

COURSE 450

Room 722 Period T-1

PAUL H. HOLINGER, M.D.

KENNETH C. JOHNSTON, M.D.
Chicago

Endoscopic Aspects of Esophageal Disease

This subject will be introduced by a discussion of instrumentarium and techniques of esophagoscopy. Lesions of the esophagus to be considered will be the congenital anomalies, esophagitis, caustic strictures, benign lesions of the cardia, foreign bodies and benign and malignant neoplasms. Although the discussions will be based on the over-all medical and surgical management of esophageal disease, particular stress will be placed on the endoscopic aspects of the various conditions. Illustrative material will consist of roentgenograms and esophagoscopic motion pictures of significant pathologic changes in the esophagus.

COURSE 451

Room 715 Period Th-3

PAUL H. HOLINGER, M.D.

KENNETH C. JOHNSTON, M.D.
Chicago

Benign Tumors of the Larynx: Treatment

This course will consist of a discussion of the endoscopic surgical management of benign laryngeal lesions. Vocal nodules, polyps, sessile polypoid cord changes and the granulomas associated with contact ulcers will be considered first. The importance of preoperative and postoperative voice therapy in this type of lesion will be indicated, stressing the correlation between the surgical aspects and voice correction techniques. Other benign neoplastic lesions, such as papillomas, chondromas, hemangiomas, and recurring keratosis, will be discussed. The subject will be illustrated by slides and motion pictures of the various lesions.

COURSE 452

Room 777 Period W-3

JACK V. D. HOUGH, M.D.
Oklahoma City

Anatomic Variations in the Middle Ear: Their Significance in Stapes Mobilization

The numerous procedures to restore function to the conductive mechanism of the middle ear have produced urgent demands for more information regarding the variations one might encounter when the eardrum is elevated and the mechanism of the middle ear is viewed. In modern otology, micro-orthopedics and plastic revisions of delicate proportions must be performed. This work requires basic knowledge in middle ear variations. Otherwise, a slight distortion or absence of a landmark may be a mechanical pitfall with an undesirable result.

Reports of middle ear malformation unassociated with other known defects have been extremely rare in the past; however, they are much more common than has been realized. A large number and a large variety of significant defects have been observed in a series of 500 transaural tympanotomies. These will be presented with kodachrome slides and illustrations. Embryology, diagnostic problems, etiologic factors and surgical corrective measures will be discussed.

COURSE 453

Crystal Room Period W-3

HOWARD P. HOUSE, M.D.
Los Angeles

Stapes Mobilization Procedure: Personal Experiences

A brief history of stapes mobilization will be presented. A general discussion of the indications for the operation, the techniques used, and results attained will be given.

The course will be illustrated by lantern slides and a motion picture on techniques.

COURSE 454

Room 777 or Room 726 — Period T-2 or Period W-2

WILLIAM C. HUFFMAN, M.D.
Iowa City

Reconstruction of the Nasal Septum

The indication, technique, and hazards of each type of septal reconstruction will be discussed. The concept of treating anterior deflections with minimal removal of skeletal elements will be presented.

COURSE 455

Room 706 — Period W-2 or Th-2

CHEVALIER L. JACKSON, M.D.
Philadelphia

Peroral Endoscopy and Endoscopic Photography: Instrumentarium and Technique

Newest types of instruments for direct laryngoscopy, bronchoscopy and esophagoscopy will be demonstrated, and current trends in the technique of these procedures will be described and discussed. Lamps of latest design will be shown, as well as the new type of connectors which is replacing connectors of the old "bayonet" type.

The history of endoscopic photography will be reviewed briefly and especial mention made of the two currently most used types of apparatus, the Holinger-Brubaker type and the French type developed by Fourestier, Gladu and Vulmiere, which uses a quartz rod for transmission of light. The use of both types of apparatus will be demonstrated. Finally, an attempt will be made to evaluate endoscopic photography as a method of study of diseases of the larynx, tracheobronchial tree and esophagus.

COURSE 456

Room 706 — Period T-3

NORMAN JESBERG, M.D.
Los Angeles

Benign Conditions of the Throat: Diagnosis and Treatment

This course is designed to present some benign conditions which may be encountered by the otolaryngologist. Some are frequent, others infrequent, but all present a challenge in diagnosis and treatment.

1. Chronic hypertrophic, lingual tonsillitis and mucous cysts of the larynx and hypopharynx
2. Hypopharyngeal hernia or diverticulum
   a. Historical aspect
   b. Evolution of surgical treatment
   c. Surgical approach
   d. Use of esophagoscope
   e. Surgical variations in primary closure of the pharynx
   f. Postoperative use of the feeding tube and methods of introduction
3. Inflammatory lesions and benign "growths" of the larynx
   a. Chronic, circumscribed, polypoid laryngitis
   b. Chronic, diffuse, polypoid laryngitis
   c. Contact ulcer granuloma
   d. Papilloma
   e. Scleroma
   f. Coccidioidal granuloma
4. Benign tumors

COURSE 457

Room 734 — Period T-1

EDLEY H. JONES, M.D.
Vicksburg, Miss.

Seasonal Hay Fever: Diagnosis and Treatment

The diagnosis of seasonal hay fever is made on the basis of history, symptomatology, clinical examination and skin tests. The important thing is to give the patient relief.

The geographic distribution of pollen-bearing plants and their pollen seasons will be briefly reviewed. The technique of making diagnostic skin tests with pollen extracts will be presented as well as the technique of titration with serial dilutions to determine degree of sensitivity and safety of treatment.

Preseasonal and coseasonal desensitization treatment, and the advantages of the combined methods, will be discussed; also, the influence of sensitivity to dust, other miscellaneous antigens and foods. The value of adjuncts to desensitization therapy, such as drugs and mechanical aids, will be reviewed, as well

as sources of supply of pollen extracts and testing equipment. Questions will be encouraged.

COURSE 458

Room 726 Period W-1

EDLEY H. JONES, M.D.
Vicksburg, Miss.

Acute External Otitis: Diagnosis and Treatment

Since successful treatment depends on correct diagnosis, the pathogenesis and etiology of acute external otitis will be reviewed and discussed.

An etiologic classification will be followed; the predisposing and complicating factors will be discussed. Kodachrome and black-and-white lantern slides will be employed to illustrate the various types and stages. Treatment will be outlined for the various types.

COURSE 459

Room 716 Period W-3

LEWIS W. JORDAN, M.D.
Portland, Ore.

Recent Nasal Fractures: Management

Recent advances in rhinoplasty by otolaryngologists for the improvement of nasal function have directed attention to more precise methods for the handling of nasal fractures. The proper management of these injuries will help prevent later disability.

This course will present a practical approach to the management of the fractured nose. It will include discussion of (1) pathologic changes; (2) methods of making an early diagnosis; (3) use of local anesthesia; (4) correction of displaced bony fragments; (5) reduction of septal fractures; (6) open reduction in cases which cannot be corrected by closed methods; (7) application of external and internal dressings; (8) nasal injuries in children; and (9) old fractures.

COURSE 460

Room 732 Period Th-1

RAYMOND E. JORDAN, M.D.
Pittsburgh

Meniere's Disease: Diagnosis and Treatment

This course will cover the management of the patient with Meniere's disease. Diagnosis and therapy, both medical and surgical, will be presented. Discussion of medical therapy will be confined to the methods used by the author. Discussion of surgical management will include selection of cases for operation and procedures used. Long-term results of this type of management will be presented.

COURSE 461

Room 734 Period W-1 or Th-1

ARTHUR L. JUERS, M.D.
Louisville, Ky.

Preservation of Hearing in Operations for Chronic Ear Disease

The "marginal eversion" method of closing central tympanic perforations will be briefly described. Mechanical trauma with eversion of the epithelial edge is utilized to help maintain an active border.

Preservation or restoration of hearing in operations for chronic attic and middle ear disease is dependent on a comprehensive understanding of the following aspects of the problem:

1. Genesis of attic perforation with or without cholesteatoma
2. Indications for surgical intervention
3. Interpretation of pathologic changes found at operation
4. Reconstruction of a new hearing mechanism when a functioning ossicular chain needs to be removed (myringostapediopexy)

Kodachrome slides of wax models will be used to show salient features of surgical technique. Illustrative audiograms will be discussed in relation to the mechanics of sound conduction preoperatively and postoperatively.

COURSE 462

Room 740 Period T-1

GEORGE KELEMEN, M.D.
Boston

Congenital Deafness

Rapidly developing information on embryopathies reveals that the environmental factor—maternal disease during pregnancy—plays an important role in producing defects. With more and more conditions recognized as transmitted in utero from the mother, the proportion between hereditary and embryopathic forms is yet undecided. Pathologic material shows how maternal syphilis, nephritis, diabetes, rubella, erythroblastosis, and toxoplasmosis result in congenital hearing defects. In animal experimentation, the effect on the hearing organ of the progeny of mothers exposed to radiation, poisoning, and anoxia serves as a corollary.

COURSE 463

Room 740 Period W-1

GEORGE KELEMEN, M.D.
Boston

Tympanoplasty

Tympanoplasty is a topical rearrangement of the anatomic elements of the external and of the middle ear to establish, in a damaged hearing organ, the best function obtainable under the circumstances. A survey will be given on the normal and pathologic properties of the tissues involved in this kind of rehabilitation surgery, discussing the possibilities and the limits of their utilization.

COURSE 464

Room 733 Period T-2

JOSEPH I. KEMLER, M.D.
Baltimore

Diagnostic and Therapeutic Aid in the Practice of Otolaryngology

As related to:

1. Epistaxis
2. Acute and chronic sinusitis
3. Submucous resection
4. Lacrimal disorders
5. Focal infections
6. Retropharyngeal and parapharyngeal infections
7. Indirect laryngoscope
8. Differentiating functional and organic maladies of the larynx
9. Meniere's syndrome

COURSE 465

Room 733 Period T-3 or Th-3

CHARLES E. KINNEY, M.D.
Cleveland

Hearing in Children: Newer Concepts

An entirely new method of surveying the hearing of school children will be described. This is just as efficient as older methods and has the advantage of being faster and requiring less bulky equipment.

A modern concept of diagnosis, treating and training the young "noncommunicative child" will be described.

Diagnosis and treatment of lesser hearing problems in the older child will be discussed, with particular emphasis on middle ear effusion.

COURSE 466

Room 738 Period T-1

JOHN A. KIRCHNER, M.D.
New Haven, Conn.

Facial Bone Injuries

Trauma to the zygoma, maxilla or nose produces characteristic deformities in the middle third of the face. These changes may be obscured by hematoma or edema, but then can usually be found by careful physical and roentgenographic examination. Techniques of examination, methods of treatment, and details of surgical anatomy will be demonstrated by photographs of patients with the various types of injury.

COURSE 467

Room 731 Period Th-2

CLAIR M. KOS, M.D.
Iowa City

Stapedial Mobilization

Stapes mobilization, practiced during

the late nineteenth century, discarded, and subsequently revived, continues to be a subject of considerable interest to the otologic profession.

More than four years of experience with over a thousand operations indicates that the procedure is successful in improving hearing in an appreciable number of patients. Despite the increase of immediate postoperative successes with improvements in technique, regressions continue to limit the net long-term successful results.

Surgical techniques, criteria for selection of cases suitable for operation, indications for re-operations, possible complications and results are essential considerations to be discussed.

COURSE 468

Room 731 Period Th-1

FRANCIS L. LEDERER, M.D.
Chicago

Diagnostic and Therapeutic Pitfalls in Otolaryngologic Practice

From the very beginning of the interrogation to the culmination of medical and surgical management of the patient, potential mishaps and pitfalls are numerous. Inasmuch as patients seeking the services of the otolaryngologist confront him with symptoms of a varied nature, definitive management entails a matter of well chosen words and carefully selected modalities. In evaluating the challenging array of signs, symptoms, and symptom-complexes—headache, nasal blockage, dizziness, dysphagia, sore throat, otalgia, hoarseness, aural or nasal discharge, cough, obstructive states of the upper or lower airway, epistaxis, tinnitus, hearing loss, disturbances of facial, orbital or neck symmetry—pitfalls, mistakes, transgressions, accidents, and errors of omission and commission are at times either apparent or evident. Although generally speaking none of these signs or symptoms is in itself diagnostic, all of them require careful evaluation for an accurate diagnosis to aid recovery, preserve function of a special sense organ, or save a life.

In this presentation the potentialities for error (diagnostic, therapeutic and surgical) are illustrated by charts and patient photographs in an effort to learn by the experience of others. Prevention is, after all, a matter of the knowledge that these pitfalls exist.

COURSE 469

Room 726 Period Th-2

A. NEIL LEMON, M.D.
Philadelphia

Serous Otitis Media in Children

Serous otitis media accounts for mild to moderate hearing loss in too large a segment of our child population and is too often overlooked. Patients referred for removal of tonsils and adenoids were studied carefully and 17 per cent were found to have serous otitis media.

This course includes a discussion of (1) etiologic factors, (2) bacteriologic, pathologic and chemical studies of the fluid, (3) diagnosis, and (4) management. The recognition of serous otitis media is made simple by careful history, proper examination, and hearing analysis. Effective treatment will be discussed in detail step by step. Most of the ideas offered in this course are visualized in lantern slides. Office care of the condition is minutely described and equipment demonstrated.

Time will be permitted for questions and answers.

COURSE 470

Room 710 Period W-3
or or
Room 731 Period Th-3

JULIUS LEMPERT, M.D.
New York

Temporal Bone Surgery: Pitfalls and Problems

Safest methods of exposing to view the surgical anatomy during the performance of temporal bone surgery will be demonstrated. The functional considerations which must be given to the surgical anatomy involved in performing various surgical procedures on the temporal bone will be discussed.

COURSE 471

Room 705 Period T-3

MARK H. LEPPER, M.D.
Chicago
BY INVITATION

Antibiotics in Otolaryngology

The use of antibiotics in terms of the known pharmacology, their effects on microbes and the nature of the disease processes will be considered. Thus, the course will include a consideration of the host-parasite, host-drug and drug-parasite relationships, and from these concepts discussion of the following problems will be developed:

1. When should one treat empirically?
2. Estimation of effectiveness of the drug
3. Bacteriologic studies required
4. Are sensitivity studies helpful?
5. What is optimal treatment?
6. When should antibiotics be changed?
7. What are the rules governing the choice of drugs when changes are made?
8. What are the reasons for failure?
9. Drug toxicity and differential diagnosis

COURSE 472

Room 705 Period W-1

PAUL M. LEWIS, M.D.
Pittsburgh

Reactions to Drugs and Antibiotics in Use in Otolaryngology

Therapeutic possibilities in otolaryngology have increased many fold in recent years with the addition of antibiotics, steroids, anesthetics and other innumerable new or modified drugs. With widespread use of these new agents, we have been confronted with an increasing incidence of reactions of a toxic or allergic nature. This presentation will cover certain drugs and antibiotics commonly used in practice, and reactions attributed to them. Prevention and treatment of these reactions will be discussed. Proper use of drugs and antibiotics in otolaryngology will be considered.

COURSE 473

Room 713 Period Th-1

ROBERT B. LEWY, M.D.
Chicago

Self-Retaining and Gear-Powered Direct Laryngoscopy

This course will consist of instruction in the chest-suspension type of direct laryngoscopy. It will involve use of a leverage holder with standard laryngoscopes and modified Lynch equipment. Some slides of photographs of laryngeal lesions will also be shown. New simplified positions which do not require head holders have been developed and will be presented.

COURSE 474

Room 740 Period T-2

WALTER E. LOCH, M.D.
Baltimore
BY INVITATION

Septum Deviations: Techniques of Surgical Correction

The technique for reconstruction of the nasal septum for varying degrees of deviations, obstructions, and impactions will be described. The surgical anatomy of the septum and its related structures will be discussed with special reference to its influence on the technical procedure and avoidance of possible unfavorable sequelae. The septal reflections will be illustrated, and their significance in the surgical procedure will be mentioned.

COURSE 475

Room 705 Period W-2

PERRIN H. LONG, M.D.
Brooklyn
BY INVITATION

The Use of Antibacterial Substances in Otolaryngology

The major problem which has had to be faced by physicians and surgeons during the past several years has been the increasing resistance of Micrococcus pyogenes, var. aureus to the various antibiotics. The situation has reached such a point that the environment of a number of hospitals in the world has been

badly contaminated by strains of this organism which fall into bacteriophage group three. Epidemics in nurseries and in surgical wards, and serious contamination of operating rooms have been reported in medical literature. It will be the purpose of this presentation to discuss the problem of resistant staphylococci, what can be done about it, and certain other problems concerned with the use of antibiotics or the toxic reactions produced by antibiotics.

COURSE 476

Room 705 Period T-1

JOSEPH LUBART, M.D.
New York

Sinusitis and Eye Disease

The cause of blindness in more than 40 per cent of the individuals studied has been found to be "unknown to science."

In more than one third of these cases, the blindness was caused by nonspecific endogenous ophthalmic inflammation. Empiric therapy, including the use of chemobiotics and corticosteroids, has done little to reduce this percentage. Elimination of focal infection, which has on occasion yielded spectacular results, has been confined mainly to accessible foci, as in teeth and tonsils.

Gratifying results in the eye condition following correction of nasal disease, when there was concomitant ocular inflammation and after all else had failed, has convinced the writer that the paranasal sinuses should always be regarded with suspicion in the face of progressive blinding ophthalmic inflammation. The need for a re-evaluation of our present day criteria for diagnosing sinusitis and clinical material to support this view will be discussed.

COURSE 477

Room 705 or Room 713 Period T-2 or Period Th-3

MERCER G. LYNCH, M.D.
New Orleans

Suspension Laryngoscopy and Intralaryngeal Surgery

The course will deal with a brief description of the apparatus, including the suspension laryngoscope as well as the suspension hook. In the description of the apparatus, special attention will be paid to the assemblage of the parts and to the function of each part in facilitating ease of operation. The discussion of the use of the instrument and its application will also include the type of anesthesia best suited for use in suspension laryngoscopy and the advantages and disadvantages of various anesthetics.

The last half of the period will deal with the technique of intralaryngeal surgery, including removal of benign and malignant lesions, removal of scars and webs, plastic procedures of the larynx, and the Thornel operation.

COURSE 478

Room 750 Period T-3

JOHN E. MAGIELSKI, M.D.
Ann Arbor, Mich.

Trauma of the Larynx and Trachea

Traumatic injuries of the larynx and trachea appear to be common complications of automobile and industrial accidents in recent years. The management of the injured larynx and trachea has always been, and will continue to be, a problem to laryngologists. This discussion will be directed to the recognition of important symptoms and signs in the patient with an acutely injured larynx. The management of the acute injury and the problems of stenosis following injury will be described. Methods of repair of stenosis of the larynx and upper trachea will be discussed, utilizing case reports.

COURSE 479

Room 744 Period Th-1

JAMES H. MAXWELL, M.D.
Ann Arbor, Mich.

Diseases of the Salivary Glands: Differential Diagnosis

This course consists of a discussion of the clinical procedures which are useful in the differential diagnosis of the more common inflammatory and neoplastic diseases of the salivary glands.

The techniques and objectives of sialography will be described.

The treatment of ranula will be discussed briefly in addition to a consideration of inflammatory cysts of the major salivary glands.

Time will be allowed for discussion at the end of the period.

COURSE 480

Room 750 Period W-1

JAMES B. McBEAN, M.D.
Rochester, Minn.

Lesions of the Nasopharynx Associated with Hearing Loss

Adequate examination of the nasopharynx is important in all cases of conduction deafness, particularly those which are unilateral or in which there is fluid in the middle ear. The various types of lesions, including adenoid hypertrophy and tumors, both benign and malignant, and their treatment will be discussed.

COURSE 481

Room 715 Period Th-2

JAMES W. McLAURIN, M.D.
Baton Rouge, La.

The Child Without Speech: Differential Diagnosis and Treatment

The child without speech is encountered by the otolaryngologist today more than ever before. The day has almost passed when the physician told the parents that a child was too normal otherwise to have anything wrong with his hearing, or that he would probably grow out of his unawareness of sound, or that if his hearing was impaired he must wait until he was 5 or 6 years old before he could be tested. This is as it should be, but in recent years there has been so much emphasis on the testing of young children by special techniques and trick methods that some of us are forgetting basic principles. In this course I shall attempt to present ideas as to how the average otolaryngologist can reach a working diagnosis, and shall offer some suggestions as to the type of therapy indicated.

COURSE 482

Room 743 Period T-1 or W-1

WILLIAM J. McNALLY, M.D.
Montreal, Que., Canada

Labyrinthine Tests

This course is designed to present the basic or elementary facts which are necessary for an understanding of clinical labyrinthine tests. Much of the time will be taken up in studying the actual methods used in carrying out the various tests. Time will also be given to working out the interpretation of reactions which follow the simple tests. The simplicity of the tests will be stressed. As a brief introduction, the anatomy and physiology of the semicircular canals and the otoliths will be reviewed. The examination of spontaneous phenomena will be considered. Guides for the detection of spontaneous nystagmus will be given. An interpretation of past-pointing tests and their relation to vestibular stimulation will be studied. The technique of performing the caloric and rotation tests will be taken up in detail. The rules which govern labyrinthine reactions will be used to interpret the results of these tests. Finally, the significance of the results of the tests in labyrinthine and intracranial diagnosis will be investigated.

COURSE 483

Room 744 Period W-3 or Th-3

FREDERIC E. MOHS, M.D.
Madison, Wis.
BY INVITATION

The Chemosurgical Method for Microscopically Controlled Excision of External Cancer with Reference to Cancer of the Eyelids

The chemosurgical method was devised to provide a means by which external cancer may be excised under complete microscopic control. This microscopic guidance is attained by systematic use of frozen sections of the tissues which have been fixed in situ by means of a zinc chloride fixative preparation.

In the treatment of cancer of the eyelids, the main mass is usually excised surgically, with the formation of a depression from which subsequent chemosurgical excisions can be carried out

without danger of the fixative being carried into the eye by movements of the eyelids or the tears.

The microscopic control, which makes it possible to selectively follow out the "silent" extensions which often grow out for some distance from the clinically discernable mass, not only results in great reliability but also in maximal conservation. The method is applicable to cancers of all degrees of extensiveness, but it is of particular value in the treatment of cancer which has become rather extensive or has recurred after previous surgical or radiation therapy.

COURSE 484

Room 738 Period W-1

DAVID MYERS, M.D.
Philadelphia

Surgery of Chronic Otitis Media and Mastoiditis

During the past few years there has been a marked change in the treatment of chronic otitis media and its sequelae. This is an evolutionary change brought about by the availability of antibiotic therapy, increasing knowledge of the physiology of the conductive mechanism of the middle ear and the improvement in otologic surgical technique and equipment.

When an attic perforation is present, there is a temptation to perform conservative procedures which preserve the conductive mechanism, save the hearing and close the perforation. Numerous techniques have been reported for tailoring the tympanomeatal flap. When the cholesteatoma has already invaded the middle ear, these operations usually result in failure with recurrence of perforation and discharge. This has made it necessary to do a more extensive operation based upon the Juers technique of myringostapediopexy. This allows for a cleansing of the middle ear and a preservation of hearing. The primary object of the operation is to remove the infection.

The lecture will cover historical events, diagnostic techniques, choice of surgical procedures, case reports and results. The data are based on analysis of a series of 94 cases of chronic mastoiditis and cholesteatoma operated on in recent years. The lecture will be illustrated by lantern slides and charts.

COURSE 485

Room 712 Period Th-3

JOSEPH H. OGURA, M.D.
St. Louis

Radical Neck Dissection and Laryngeal Carcinoma

Carcinoma involving the larynx is usually best handled by radical extirpation. Lesions of the endolarynx and the subglottic area should be treated by total laryngectomy and radical neck dissection whether nodes are palpable or not. On the other hand, when the true cord or arytenoid is not involved, primary tumors of the pyriform sinus can be surgically removed by the transhyoid pharyngotomy approach. Carcinoma of the epiglottis without cordal involvement can be removed by the supraglottic subtotal laryngectomy and radical neck dissection procedure.

The various methods of handling tumors in this area will be discussed and techniques outlined by lantern slides and motion pictures.

COURSE 486

Room 750 Period T-2

JAMES J. O'NEIL, M.D.
Omaha

Aerosol Therapy in Otolaryngology

Inhalation therapy, based on a control series of 500 patients and since utilized as an adjunct in the management of over 5000 otolaryngologic disorders, will be briefly reviewed, and the reasons for its past failures and its present success will be discussed.

The physiologic basis for its application to otolaryngology and the pharmacologic properties of the newer drugs studied will be given. Indications, contraindications, and a practical demonstration of its administration will be presented.

COURSE 487

Room 716 Period Th-1

JAMES J. O'NEIL, M.D.
Omaha

External Otitis: Diagnosis and Treatment

Utilizing the latest concepts regarding

the etiology and pathology of external otitis, this course will present with kodachrome slides many pertinent points in its diagnosis and treatment.

With a "simplified" pathologic process as the basis, the diagnosis of both the infectious and allergic disorders will be presented. The newer methods of medical management of both types will be reviewed, together with a series effectively treated by cold quartz and Grenz ray therapy. The rationale of this modality will be presented and it will be offered as an addition to the armamentarium for this persistent problem.

COURSE 488

Room 740 Period W-3

PETER N. PASTORE, M.D.
Richmond, Va.

Lump in the Throat and Pharyngeal Reflexes

For centuries the complaint of "a lump in the throat" has been synonymous with the diagnosis of "globus hystericus." Fortunately, many physicians have not complacently accepted this as a logical conclusion in every instance.

The discoveries and writings of the past twenty-five years have disclosed multiple causes contributing to the symptom and related sensations previously classified as neurotic in type.

Of all specialists, the otolaryngologist should be most fully aware of the many recent developments and observations, particularly those related to previously neglected pharyngeal reflexes and their manifestations.

Over twenty functional conditions causing the sensation "a lump in the throat" will be reviewed. Comments regarding the mechanism, diagnosis and treatment of the symptoms will be supplemented by illustrations and a discussion of the nerve pathways thought to be involved.

COURSE 489

Room 750 Period W-2

SAMUEL J. PEARLMAN, M.D.
Chicago

Certain Aspects of Aging in the Ear, Nose and Throat Regions

The intent of this presentation is to clarify ideas and to determine an approach to practical therapy.

The topics discussed will include dizziness in the aged, presbycusis and accompanying tinnitus; dry mouth; sore tongue; varicosities and painful papillas of the tongue; and nosebleed in the aged.

Lantern slides will be shown.

COURSE 490

Room 743 Period Th-1

HENRY B. PERLMAN, M.D.
Chicago

Fluid in the Middle Ear: Etiology and Management

Different kinds of fluid may be found in the middle ear and adjacent air cells. Each kind is associated with a particular pathogenesis. A clear understanding of the normal and pathologic physiology of the eustachian tube is essential to the interpretation of this group of ear diseases. The recognition of their more subtle changes and their relation to deafness is sometimes difficult. Careful observation of the natural course of the various disease states is also important in understanding indications and prospects of therapy. Experience with some unusual cases seen during the past few years will be reviewed. A motion picture will be presented.

COURSE 491

Room 738 Period T-3

JOEL J. PRESSMAN, M.D.
Los Angeles

Primary Repair Following Removal of Tumors of the Face

Modern surgical techniques are leaning more and more toward primary repair at the time of operation on defects following excisions of tumors of the face. This course is a demonstration by slides of surgical techniques involved in the restitution of appearance and function following the removal of such tumors. It will include examples of the use of grafts taken from the eyelids, sliding and rotation flaps, Z-plasties and the re-

pair of residual "dog ear" defects. Included will be several examples of the repair of carcinomas of the auricle.

COURSE 492

Room 738 Period W-3

JOEL J. PRESSMAN, M.D.
Los Angeles

Cysts of the Neck: Diagnosis and Surgical Treatment

The preliminary presentation will include slide demonstrations of essentially all masses found in the neck together with a description of the differential diagnosis and a discussion of etiology. The demonstration will then encompass in greater detail the clinical picture of the congenital masses that are found, together with a slide demonstration of the surgical removal of a variety of types of such lesions. The presentation will include a discussion of laryngocele.

COURSE 493

Room 738 Period W-2

BRUCE PROCTOR, M.D.
Detroit

Tympanoplasty

The combination of surgery for the control of middle ear inflammation and preservation or restoration of hearing is referred to as tympanoplasty. Hearing may be improved by reconstructing the sound mechanism for transmission of sound waves to the oval window and by restoration of sound protection for the round window. The following aspects will be discussed: (1) surgical anatomy of the middle ear; (2) physiologic objectives; (3) analysis of the pathologic changes and status of the middle ear before and during the surgical procedure; (4) the techniques employed in the various types of tympanoplasty; (5) a critical survey of the results achieved; and (6) analysis of failures.

COURSE 494

Room 744 Period W-1

WILLIAM F. RABBETT, M.D.

RICHARD J. BELLUCCI, M.D.
New York

Submucous Resection of the Nasal Septum

Surgical anatomy of the nasal septum and framework of the external nose will be reviewed.

A simplified technique for the surgical correction of the deviated nasal septum, as taught at the Manhattan Eye, Ear and Throat Hospital, will be presented.

Surgical management of the anterior deviated nasal septum with obstruction of the nares will be considered.

The relative importance of the septum in plastic surgery of the nose will be discussed.

COURSE 495

Room 744 Period W-2

AUBREY G. RAWLINS, M.D.
San Francisco

The Corticosteroids in Otolaryngology

In general, the corticoids function in maintaining a normal structure in the mesenchymal tissues. However, we seldom use them in a physiologic manner. We use them in pharmacologic doses. In the practice of otolaryngology, the corticoids are used mainly as anti-inflammatory agents. Inflammation will be discussed and explained. The dangers of using these hormones will be discussed. How do we prevent these dangers? Is the length of the treatment more important than the size of the dose? Does cortisone have advantages over the newer products? Relationship between corticoids and thyroid will be discussed as well as the following factors: difficulty in diagnosing hypothyroidism; basal metabolic rate and protein bound iodine test not accurate (a simple and more accurate test described); definite indications for the use of the corticoids; questionable indications; contraindications; questions to be asked of the patient before using corticoids; special tests; specific dosage.

COURSE 496

Room 743 Period Th-2

SCOTT N. REGER, Ph.D.
Iowa City

Practical Office Audiometry

This course will comprise (1) the common sources of error in audiometry; (2) an adequate testing procedure; (3) the use of masking while obtaining air and bone conduction measurements; and (4) interpretation of audiograms.

COURSE 497

Room 776 Period W-2

HERBERT J. RINKEL, M.D.
Kansas City, Mo.
BY INVITATION

The Nature of Food Allergy

Food sensitization is presented as being of two main types, the fixed or permanent and the cyclic form. Cyclic food allergy may be primary perennial, it may be concomitant, or it may be thermal. The nature of these reactors and the characteristics of their clinical manifestations will be given in detail.

The usage, the value, and the limitations of the food diary records will be emphasized. The value of elimination diets and especially prescribed diets will be covered in detail.

COURSE 498

Room 711 Period Th-3

HERBERT J. RINKEL, M.D.
Kansas City, Mo.
BY INVITATION

Specific Diagnosis in Allergy

A. Foods

Part one will be concerned with the diagnosis of food sensitization:

1. History
2. Skin tests
3. Deliberate feeding tests
4. The cytotoxic cell test

The sources of error in such testing, the average accuracy, and the subsequent clinical application of the tests will all be given.

B. Inhalants

In part two, a method of determining inhalant degree of sensitivity will be presented with natural-colored photographs showing such types of response. The clinical significance of this test will be detailed.

COURSE 499

Room 721 Period T-3

SAM E. ROBERTS, M.D.
Kansas City, Mo.

Little Strokes Observed in Otolaryngologic Practice

Little strokes are single or multiple thromboses involving little arteries or arterioles occurring anywhere in the body. I believe they occur more frequently, and usually primarily, in the acoustic and static labyrinth.

Wolff quite logically stresses that the small caliber of the nutrient vessels to the labyrinth predisposes to frequent and disastrous pathologic changes. She believes that a considerable degree of peripheral vascular disease need NOT exist before a lesion occurs, not only in its minute peripheral branches but also in its main channel to the labyrinth.

Otologists should, therefore, be alerted to diagnose this condition before extensive neurovascular damage has taken place. There is only a short period of grace in which the lesion is reversible or arrestable in this extremely sensitive region. Little strokes are only warnings. They may or may not portend a future catastrophic vascular accident elsewhere. The etiologic genesis is probably identical; therefore, we should attempt to anticipate coronary and other arterial occlusions with a view toward prevention, if possible. This makes for medical progress. The possible etiologic factors, the pathologic changes and the suggested treatment will be discussed.

COURSE 500

Room 743 Period T-2

BERNARD J. RONIS, M.D.
Philadelphia

Chronic Sinusitis: Diagnosis and Treatment

The diagnosis of chronic disease of the

paranasal sinuses requires systematic review of the patient's history and clinical findings. The evaluation of the cellular pathology of sinus secretions and biopsy of the mucous membrane offers a means of differentiating subacute, chronic, specific, nonspecific or neoplastic disease. The inflammatory changes in the nose and sinuses exhibit similar basic reactions seen in other organs. The results of medical and surgical treatment can be prognosticated with some degree of accuracy in such disorders as sarcoidosis, chronic infection and benign or malignant lesions of the sinuses.

Benign pathologic alterations in the sinus epithelium are common and may be extensive, with the resultant metaplasia filling the sinus with papillary or polypoid mucosa.

The medical treatment of chronic sinusitis with those potent agents—the antibiotics, antihistaminics and steroids—is important today.

Surgical measures are necessary less frequently, but they are indicated in certain instances. These indications will be discussed. The type of operation must fit the needs of the individual patient.

In review of this problem the following are considered:

1. Methods of diagnosis
2. Technique of biopsy of sinus mucosa and result of histologic study
3. Adequate medical treatment
4. Indications for operation
5. Choice and techniques of operation
6. End results of sinus operation

COURSE 501

Room 744 Period Th-2

SAMUEL ROSEN, M.D.
New York

Surgical Anatomy of the Vestibule with Reference to the Stapedial Footplate

Fenestration of the oval window through the still rigid footplate after all efforts at mobilization at the neck and footplate have been exhausted has restored hearing up to the normal level with complete closure of the air-borne gap. This has occurred whether the ossicular chain is interrupted or not. Hearing improvement in such cases has been maintained for almost three years to date. This phenomenon must now be explained, especially with the help of acoustic physiologists. The material will consist of fenestrated stapes (cadaver) specimens, case studies with audiograms, and a film demonstrating the technique. The surgical anatomy of the vestibule with relation to the stapes will be shown in diagrams and models.

COURSE 502

Room 716 Period Th-2

ROBERT E. RYAN, M.D.
St. Louis

Headache: Differential Diagnosis and Treatment

The differential diagnosis and the treatment of various types of headache will be presented. Among types of headache to be discussed are migraine, histaminic cephalalgia, sinusitis, myalgia, tension headache, psychogenic headache, hypertensive headache, post-traumatic headache, and ocular or otic headache, as well as the mixed type.

Various new preparations for treating headache patients will be discussed and the results of treatment demonstrated. Many of these drugs are still in the investigative stage, while others have been on the market for only a short period of time. The prophylactic and the symptomatic phases of the various types of headache will be discussed.

Techniques for recording the history of the headache patient and for routine examination will be outlined.

COURSE 503

Room 743 Period W-2

WILLIAM H. SAUNDERS, M.D.
Columbus, Ohio

Treatment and Clinical-Pathologic Correlation of Oral Lesions

Two screens will be used on which to show oral lesions and their corresponding microscopic sections (both in color). This presentation, which permits the audience to view both the actual lesion and its color photomicrograph simultaneously, fixes in memory why the clinical lesion looks and behaves as it does.

Some of the lesions shown represent common oral diseases, the exact nature of which the practicing physician may

have forgotten because of unfamiliarity with microscopic pathology. Other lesions represent diagnostic rarities which lend themselves well to clinical-pathologic correlation.

COURSE 504

Room 750 Period W-3

HAROLD F. SCHUKNECHT, M.D.
Detroit

The Technique for Removal and Preparation of Temporal Bones for Anatomical-Surgical Dissection and Pathological Study

A motion picture and lantern slides will be used to demonstrate the method for removal of the temporal bone for anatomical-surgical dissection. Use of the bone plug cutter used in the Stryker saw is an easy technique which results in excellent preservation of the external auditory canal and middle ear as well as most of the mastoid air cell system, and provides a good specimen for transtympanic and mastoid surgery. The specimens can be kept in a deep freeze until used.

Methods for diminishing postmortem degeneration of specimens to be studied for pathological changes will be discussed.

COURSE 505

Room 738 Period Th-1

HAROLD F. SCHUKNECHT, M.D.
Detroit

The Technique for Using the Chisel in Stapes Mobilization

Whereas mild and moderate ankyloses can be mobilized quite satisfactorily by a variety of indirect and direct footplate methods, they are not satisfactory for a severely ankylosed footplate.

The use of chisels of proper size and shape have greatly facilitated mobilization of the footplate even in the more severely ankylosed cases.

The technique may vary somewhat, but excellent control can be maintained by holding the chisels with the bare hand. Tapping of the chisels can be performed by either the operator or the assistant.

In the first statistical study of results, the chisel technique had a success rate of 72 per cent three months after the operation.

The advantage of the chisels is that the continuity of one or both crura is preserved and the columella effect is maintained.

COURSE 506

Room 743 Period T-3

LYLE M. SELLERS, M.D.
Dallas

The Office Practice of Otolaryngology

Here are the procedures found by thirty-five years' experience to be most effective in the office practice of otolaryngology. The course will begin with the introduction of the patient to proper office procedures by the receptionist. It will continue with methods of keeping records, both professional and business; putting the patient at ease in the presence of strange and perhaps awesome environment; dealing with the patient as a sick and frightened human being; the successful approach to and the human handling of children.

Special attention will be given to the technical procedures in the course of treatment that have proved to be of most value in the ordinary as well as in unusual clinical problems. Consideration will also be given to office equipment and how to keep it modern and workable without the extravagant purchases of new gadgets that prove to have little or no value beyond the passing moment. In short, the discussion will be based on how best to conduct yourself and your office that out of your practice will come that which will be of lasting benefit to your patients and to yourself.

COURSE 507

Room 743 Period W-3

LYLE M. SELLERS, M.D.
Dallas

Dizziness: Its Cure or Relief

The practical, simple and direct methods for the cure or the relief of dizziness as developed by many years' practice in this field of otology are offered in this course.

Only enough of the anatomy and physiology of the vestibular labyrinth will be given to assure understanding of the clinical tests. The tests themselves, when divested of theoretical adventitia, actually are very easily performed and interpreted.

Because the particular type of dizziness or dysfunction must be identified before successful treatment can be instituted, differential diagnosis will be stressed.

When identification of the cause is accomplished, the proper treatment evolves logically and easily. It is this phase of the problem that will be emphasized by the discussion of actual cases with their problems in diagnosis and successful treatment.

Ample time for questions and answers will be allowed.

COURSE 508

Room 744 or Room 738 — Period T-3 or Period Th-3

GEORGE E. SHAMBAUGH, JR., M.D.
Chicago

Otosclerosis: Selection of Therapy

A critical evaluation of fenestration versus stapes mobilization as the operation of choice in cases of otosclerosis will be based on published reports and accumulated experience.

The preoperative tests required to advise a patient regarding elective surgery for otosclerosis and the interpretation of these tests will be described, including the predictive formula and the pertinent information which should be supplied a patient to enable him to choose between an operation and a hearing aid.

COURSE 509

Room 738 — Period T-2

S. RICHARD SILVERMAN, Ph.D.
St. Louis
BY INVITATION

Education and Rehabilitation of the Hearing Handicapped

The course will clarify the nature of hearing impairment as it relates to education and rehabilitation, including the degree of impairment of social efficiency as it relates to amount of hearing loss. Acceptable educational and rehabilitative measures for the deaf and hard of hearing will be discussed. This will include hearing aids, lip reading, auditory training, speech correction and conservation and vocational opportunity.

COURSE 510

Room 740 — Period T-3

EMANUEL M. SKOLNIK, M.D.
Skokie, Ill.

Head and Neck Surgery: Errors and Safeguards

The head and neck area contains a concentration of major anatomic structures almost unnoticed elsewhere in the human body insofar as their damage affects the cosmetic appearance and functional capacities of the individual.

The subject matter will be discussed according to the similar types of tissues in the area (muscles, nerves, vascular structure, etc.) rather than on purely anatomic grounds. Lantern slides will be adequate to demonstrate the various incisions and the contiguous anatomy. The management of complications will be stressed.

COURSE 511

Room 740 — Period W-2

CLARENCE H. STEELE, M.D.
Kansas City, Kan.

Bronchogenic Carcinoma: Diagnostic Aspects

The instructional course, based on an analysis of a personal series of well over 200 proved cases, will consider bronchogenic carcinoma from the diagnostic standpoint. Reports from the current medical literature will be utilized for comparative purposes.

Useful techniques in the diagnosis of lung cancer will be enumerated in detail.

COURSE 512

Room 744 Period T-1

JOSEPH A. SULLIVAN, M.D.
J. BRYDON SMITH, M.D.
Toronto, Ont., Canada

Facial Palsies and Their Treatment

Recent interest in stapes mobilization, tympanoplasty and myringoplasty has forced the otologist to adopt magnification to order to carry out these procedures.

It is hoped that such magnification will reduce the number of postoperative facial palsies. However, despite all precautions, accidents can and do happen. This course is designed to advise the otologist when and how to decompress the facial nerve and the correct method of doing so. The variations of facial nerve repair and their end results will be discussed.

COURSE 513

Room 776 Period T-1

HAROLD G. TABB, M.D.
New Orleans

Maxillectomy: Surgical Technique

This course will describe in detail the steps in a surgical resection of the maxillary antrum for carcinoma, with and without inclusion of the orbital contents. Discussion will also be centered on making an early diagnosis in cancer of the antrum, the type of management required, merits of hypotensive anesthesia, the use of supplemental irradiation, postoperative care and rehabilitation of the patient. The procedure will be demonstrated and illustrative cases shown on kodachrome slides.

COURSE 514

Room 776 Period W-1

HAROLD G. TABB, M.D.
New Orleans

Surgical Approaches to the Nasopharynx

Two basic surgical approaches for operative procedures on the nasopharynx and the palatal fenestration procedure for creation of a permanent window for radiation treatment of nasopharyngeal carcinoma will be described in detail. The technique and illustrative cases will be shown on kodachrome slides.

COURSE 515

Room 786 Period T-1
or or
Room 706 Period Th-3

G. EDWARD TREMBLE, M.D.
Montreal, Que., Canada

Practical Therapeutics in Office Practice

In this course a number of common conditions encountered every day by otologists will be discussed.

1. Nasal obstruction due to engorged or hypertrophied inferior turbinates; its treatment
2. Methods of shrinking the posterior tips
3. The conservative treatment of sinusitis in view of our present knowledge
4. A safe and simple method of irrigating the sphenoid sinus. This is important in cases of optic neuritis. A 6-minute motion picture in color will present a few important measurements and instruments used in this procedure
5. The tonsil and adenoid problem, with special reference to the clinical anatomy and treatment of the lingual tonsils
6. If time permits, some practical points will be mentioned about external otitis. Treatment in this condition has changed considerably in the past ten years due to our greater knowledge. The relative merits of the current antibiotics will be described and a number of suggestions given.

COURSE 516

Room 786 Period W-2
or or
Room 738 Period Th-2

O. E. VAN ALYEA, M.D.
Chicago

Sinusitis: Modern Trends in Management

Persistence of a sinus infection im-

plies inadequate drainage. Factors contributing to impairment of drainage may be local or systemic. The local factors may be structural or pathologic, and in some cases the sinusitis is maintained by a combination of contributing causes.

The goal of the rhinologist is to eliminate the causative factors while treating the infection.

Seldom is the radical removal of sinus mucosa in the treatment of sinusitis indicated, and it should be undertaken with the understanding that only temporary relief may be expected and that a return of the symptoms, even more pronounced than formerly, may ensue.

In this course the techniques of various therapeutic measures used successfully in the management of sinus disease will be discussed in detail.

COURSE 517

Room 744 Period T-2

LINDEN J. WALLNER, M.D.
Chicago

Diseases of the Larynx: Kodachrome Clinic

As the title implies, the course will consist principally of the showing of a collection of kodachrome slides illustrating the common, as well as many of the more unusual, laryngeal diseases. This will include both acute and chronic inflammation, and the aspects of tuberculosis before and after antimicrobial therapy. There will be instances of cysts, singer's nodes, granuloma from endotracheal tubes, conditions considered to be the result of smoking, foreign bodies, injuries, and benign and malignant tumors. In many cases the appearance before and after treatment will be shown.

COURSE 518

Room 726 Period Th-1

LINDEN J. WALLNER, M.D.
Chicago

An Operation for the Closure of Oroantral Fistula

Extraction of one of the upper molar teeth is the usual cause of oroantral fistula. These fistulas may be divided into two types: the acute (of recent origin) and the chronic.

Acute oroantral fistula is treated by avoidance of manipulation of the fistula, antimicrobial therapy and intranasal irrigations of the antrum when suppuration is demonstrated. Most acute fistulas will close when managed in this manner.

In chronic oroantral fistula the pathologic changes consist of an epithelized tract, localized osteitis and chronic maxillary sinusitis. The treatment advised is, first, to relieve the sinus infection by means of an intranasal antrotomy or the Caldwell-Luc operation. After this has been accomplished a plastic procedure to close the fistula is performed. A colored motion picture will be shown to demonstrate the pathologic changes and steps in the correction of a case of oroantral fistula. The plastic operation shown is the one described by Berger, in which a flap is fashioned from the lateral aspect of the alveolus.

COURSE 519

Room 776 Period T-2

DELMAR F. WEAVER, M.D.
Detroit

Tumors of the Face: Management

A variety of benign and malignant tumors of the face will be illustrated by kodachrome slides. The methods of surgical treatment used on these tumors and the reconstruction of postoperative defects will be discussed and illustrated in some detail. Treatment includes simple excision and electrocoagulation of small tumors as well as more extensive procedures requiring removal of bone or cartilage in the regions of the frontal and maxillary sinuses, the mastoids, the nose and ears.

Reconstructive procedures include free skin graft, adjacent flaps, pedicle flaps from the forehead, and tubed pedicle flaps from the clavicular region.

COURSE 520

Room 776 Period T-3

DeGRAAF WOODMAN, M.D.
New York

Glottic Obstruction: Techniques for Correction

1. Open approach to arytenoidectomy for bilateral abductor paralysis

2. Corrective operation for laryngeal stenosis
3. Treatment of laryngeal web
4. Operation for obstructive papilloma

Discussion of the above problems will be supplemented by slides and a colored motion picture with sound.

COURSE 521

Room 776 Period W-3

GEORGE H. WOODRUFF, M.D.
Joliet, Ill.

Epistaxis and Its Management

Nasal hemorrhage is a frequent and often a rather troublesome problem for the otolaryngologist. The aim of this course is to present the most efficient methods for controlling nosebleeds of different kinds. The vascular anatomy of the nasal chambers will be described in some detail, with special attention to the so-called naso-nasopharyngeal plexus. Since the method of control depends a great deal on the location of the bleeding point, the favored sites for bleeding will be discussed. Various methods used for control will be presented and their usefulness in various types of nosebleed will be evaluated.

The Following are Condensed Schedules of Courses Previously Described

CONTINUOUS COURSES — OPHTHALMOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
1	Allen et al.	Bacteriology and Infectious Diseases	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
2	Ascher	Aqueous Veins in Glaucoma	2 PERIODS M-4, M-5
3	Ballintine & Purnell	Clinical Tonography	2 PERIODS M-5, M-6
4	Becker & Kinsey	Studies on Aqueous Flow	2 PERIODS T-4, T-5
5	Bedell	Ophthalmoscopy	3 PERIODS M-6, T-6, W-6
6	Boeder	Practical Optics	2 PERIODS M-5, M-6
7	Braley	Fundus Lesions: Diagnosis with Slit Lamp	2 PERIODS W-5, W-6
8	Breinin	Electromyography	2 PERIODS W-4, W-5
9	Brockhurst	Indirect Ophthalmoscopy	2 PERIODS T-5, T-6
10	Brown, H. et al.	Eye Muscles	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
11	Byrnes	Ophthalmic Filters	2 PERIODS T-5, T-6
12	Callahan et al.	Ophthalmic Plastic Surgery: Advanced	8 PERIODS M-5, M-6, T-5, T-6 W-5, W-6, Th-5, Th-6
13	Clark	Retinal Detachment	3 PERIODS M-4, T-4, W-4
14	Cooper	Principles of Muscle Surgery	2 PERIODS T-5, T-6
15 or 16	Copeland	Streak Retinoscopy	4 PERIODS M-4, M-5, T-4, T-5 or W-4, W-5, Th-4, Th-5
17	Costenbader	Muscle Problems	2 PERIODS M-4, M-5
18	Costenbader & Simpson	Probing Nasolacrimal Duct in Infant & Adult	2 PERIODS T-4, T-5
19	Dickey et al.	Ocular Motility	6 PERIODS M-5, M-6, T-5, T-6 W-5, W-6
20	Dunnington & Regan, E.	Cataract Surgery: Complications Due to Defective Wound Healing	2 PERIODS M-4, M-5
21	Fonda & Sloan	Subnormal Vision: Technique for Examination	2 PERIODS T-4, T-5
22	Gettes & Donnelly	Refraction	6 PERIODS M-4, M-5, T-4, T-5 W-4, W-5
23	Guibor	Orthoptics: Office & Home Techniques	3 PERIODS M-4, T-4, W-4
24	Harley	Lesions of 3rd, 4th & 6th Cranial Nerves	2 PERIODS W-5, W-6
25	Hughes et al.	Ophthalmic Plastic Surgery: Fundamental	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
26	Jones, L.	Lacrimal Drainage Apparatus	2 PERIODS M-4, M-5

CONTINUOUS COURSES — OPHTHALMOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
27	Knighton et al.	Practical Essentials of Glaucoma	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
28	Lemoine et al.	Fundus Lesions	2 PERIODS M-5, M-6
29	Linksz	Physiology of Vision	2 PERIODS W-5, W-6
30	Masters, R., et al.	Slit Lamp Biomicroscopy: Fundamentals	9 PERIODS M-4, M-5, M-6, T-4, T-5 T-6, W-4, W-5, W-6
31	McLean & Guyton	Practical Factors in Eye Surgery	4 PERIODS M-4, T-4, W-4, Th-4
32	Mullen et al.	Ocular Emergencies	3 PERIODS M-4, T-4, W-4
33	Pischel et al.	Retinal Detachment	4 PERIODS M-5, M-6, T-5, T-6
34	Posner & Gorin	Office Gonioscopy	2 PERIODS T-4, T-5
35	Regan, C., & Boeder	Refraction	4 PERIODS M-4, M-5, T-4, T-5
36	Roberts	Glaucoma: Early Diagnosis	2 PERIODS M-4, M-5
37	Rolett	Gonioscopy: Practical Application	2 PERIODS W-4, W-5
38	Romaine	Ocular Motility Surgery	4 PERIODS M-4, M-5, T-4, T-5
39	Romaine	Refraction: Problems & Treatment	3 PERIODS M-6, T-6, W-6
40	Schepens et al.	Retinal Detachment	8 PERIODS M-5, M-6, T-5, T-6 W-5, W-6, Th-5, Th-6
41	Schimek & Bousquet	Clinical Gonioscopy & Tonography	2 PERIODS W-4, W-5
42	Schlaegel & Hungerford	Uveitis	2 PERIODS Th-4, Th-5
43	Shaffer	Gonioscopy: Practical Application	2 PERIODS T-5, T-6
44	Stow & Moss	Diagnostic & Therapeutic Office Procedures	2 PERIODS M-5, M-6
45	Theobald et al.	Histopathology	12 PERIODS M-4, M-5, M-6, T-4, T-5, T-6, W-4, W-5, W-6, Th-4, Th-5, Th-6
46	Thorpe	Intraocular Foreign Bodies	2 PERIODS M-4, M-5
47	Thorpe et al.	Advanced Slit Lamp Biomicroscopy: Recent Developments	3 PERIODS Th-4, Th-5, Th-6
48	Thorpe et al.	Slit Lamp Gonioscopy	6 PERIODS T-4, T-5, T-6 W-4, W-5, W-6
49	Townes	Cataract Surgery: Complications	2 PERIODS T-5, T-6
50	Troutman et al.	Recent Advances in Ophthalmology	8 PERIODS M-5, M-6, T-5, T-6 W-5, W-6, Th-5, Th-6
51	Troutman	Enucleation Surgery	2 PERIODS T-4, T-5
52	Wheeler & Knapp	Concomitant Strabismus	4 PERIODS M-4, M-5 T-4, T-5
53	Home Study		10 PERIODS M-4, M-5, M-6, T-4, T-5 T-6, W-4, W-5, W-6, Th-4

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Monday

Key M-4 — 2:00 p.m. to 3:00 p.m.

No. Course	SPEAKER	SUBJECT
105	Alvaro	Uveitis: Etiology & Treatment
110	Bannon	Aniseikonia
119	Calhoun	Epithelization of Anterior Chamber
122	Cassady	Toxoplasmic Retinochoroiditis
133	Cutler	Cataract: Methods of Extraction
136	Davis	Sutures in Cataract Surgery
138	DeVoe	Corneal Dystrophies & Degeneration
139	Diskan	Vision Screening in Schools
145	Everett	Retinal Detachment: Selection of an Operation
151	Fralick	Principles of Lid Surgery
152	Frayer	Retained Lens Protein After Operation & Trauma
181	Kornzweig	Clinical Embryology
200	Marks	Electrical Currents Used in Ophthalmology
205	Miller	Corneal Diseases
215	Payne	Extraction of Complicated Cataract

Key M-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
120	Carroll	Optic Nerve Lesions: Differential Diagnosis
137	Day	Medical Exophthalmos: Diagnosis & Treatment
142	Dunlap	Divergence Anomalies
148	Ferrer	Contact Lenses
154	Gartner	Fundus Diseases: Clinical & Pathologic Correlations
157	Gifford	Local Anesthesia with Special Reference to Deep Motor Block
161	Haik	Intracapsular Cataract Extraction
221	Reese	Cataract Extraction
226	Scarney	Slit Lamp (Biomicroscopy)

Key M-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
104	Allen, H.	Aseptic Technique in Ophthalmology
106	Alvis	Glaucoma Surgery: Long-Term End Results
111	Berens	Cycloelectrolysis, Cyclodiathermy, Iridencleisis & Cyclodialysis
114	Bettman	Radioactive Isotopes
127	Cholst	Central Fields: Methods & Techniques
128	Cohoe	Special Reading Instruction for the Partially Seeing
129	Coston	Inflammatory & Degenerative Disease of Retina
131	Cunningham	Types of Head Pain
134	Daily	Biomicroscopy of Vitreous & Fundus Oculi
135	Davidson	Surgical Instruments: Preparation & Care
141	Dixon & I. Jones	Intraocular Tumors
149	Fink	Binocular Problems in Routine Refraction
155	Gemeroy	External Diseases
159	Gump	Recurrent Iridocyclitis
166	Jacobson	Electroretinography
187	Leopold	Advances in Opthalmic Therapy
188	Lepard	Eye Diseases Common to Children
197	MacLean	Cataracts: Surgical Management
213	Osher	Diagnostic Approach to Surgical Correction of Squint
225	Rychener	The Lacrimal Apparatus
234	Stauffer	Allergic Conditions of Eye
243	Wendland	Chiasmal Lesions

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Tuesday

Key T-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
105	Alvaro	Uveitis: Etiology & Treatment
107	Andrew	Eye Diseases in Children
109	Atkinson	Cataract Extraction
119	Calhoun	Epithelization of Anterior Chamber
121	Cassady	Dacryocystitis & Lacrimal Drainage
132	Cusick	Ptosis Surgery: Practical Aspects
133	Cutler	Cataract: Methods of Extraction
138	DeVoe	Corneal Dystrophies & Degeneration
144	Egan	Cross Cylinder: Application & Theory
153	Fread	Ideal Refraction Equipment
185	Leinfelder	Perimetry & Use of the Tangent Screen
215	Payne	Extraction of Complicated Cataract
223	Ruedemann	Surgery of Vertical Muscles
231	Solanes	Parasitic Uveitis (Metazoal)
236	Swan	Glaucoma: Value of Drugs Used

Key T-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
103	Aldrich	Emotional Problems
112	Berens	Ophthalmic Surgery
142	Dunlap	Divergence Anomalies
146	Falls	Practical Application of Heredity
158	Givner	Eye Changes in Systemic Diseases
168	Jardon	Fitting Ocular Prostheses
178	Kestenbaum	Reading Aids for Low Vision
224	Rundles	Streak Retinoscopy
226	Scarney	Slit Lamp (Biomicroscopy)

Key T-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
113	Berke	Ptosis: Surgical Treatment
115	Bettman	Value of Goniotomy
117	Bonaccolto	Enucleation Techniques
126	Chandler	Cataract Surgery
134	Daily	Biomicroscopy of Vitreous & Fundus Oculi
156	Gibson	Marginal Myotomy
160	Haas	Congenital Glaucoma
172	Joy	Chronic Glaucoma: Surgical Management
177	Kennedy	Ocular Manifestations of Systemic Diseases
184	Leahey	Corneal Transplantation
188	Lepard	Eye Diseases Common to Children
189	Levy	Practical Uses of Contact Lenses
192	Lloyd	Fundus Lesions of the Senile Eye
194	Long	Retinoblastoma & the Pseudoretinoblastomas
206	Morrison	Glaucoma: Office Management
217	Pico	Dacryocystorhinostomy
225	Rychener	The Lacrimal Apparatus
227	Scheie	Congenital Glaucoma: Surgical Procedures
240	Uihlein	Neuralgias of the Head: Treatment
245	Wood	Central Retinal Lesions

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Wednesday

Key W-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
121	Cassady	Dacryocystitis & Lacrimal Drainage
124	Chamberlain	Vertical & Horizontal Components in Strabismus
162	Hedges	Neuralgias of the Head: Treatment
164	Hill	Cataract Surgery: Keratome & Scissors Technique
167	Jampolsky	Ocular Divergence: Management
169	Jobe	Information on Ophthalmic Instruments
171	Johnson, L.	Bullous Keratopathy: Treatment
179	King	Preserved Ocular Tissues Used for Transplantation
182	Kronenberg	Practical Ocular Therapeutics
185	Leinfelder	Perimetry & Use of the Tangent Screen
186	Lennon	Acute Inflammatory Glaucoma: Therapy
196	Luce	Wound Healing
198	Mangold	Proper Fitting of Glasses
199	Mann	Hypertensive Vascular Changes in the Fundus
202	McGraw	Contact Lenses
208	Naquin	Dislocation of the Lens
218	Pino	Aids to the Ophthalmologist in Office Practice
219	Prewitt	External Eye Diseases Associated with Allergy
239	Theodore	Ocular Therapeutics
241	Vail	Senile Cataract: Mechanical Factors of Surgery

Key W-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
125	Chamlin	Perimetry
147	Falls	Ocular Geriatrics
170	Johnson, C.	Ptosis
174	Katz, D.	Ophthalmic Anatomy
178	Kestenbaum	Reading Aids for Low Vision
180	Klien	Clinical Pathology of the Retina
183	Kronfeld	Present Trends in Ocular Pharmacology
193	Lloyd	Diseases of the Cornea
195	Lubkin	Psycho-Somatic Aspects of Ophthalmology
203	McGuire	Cataract: Management of the Patient
204	Meyer	Glaucoma: Surgical Treatment
214	Paulson	Lighting for Comfortable & Accurate Seeing
216	Pfeiffer	Roentgenography of the Eye & Orbit
220	Quereau	Practical Physiology of Ocular Movements
229	Simpson	Hemorrhage Into the Vitreous
230	Smith	Fractures of the Orbit
232	Spaeth	Plastic Surgery: Practical Aspects

Key W-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
101	Aebli	End Results of Muscle Surgery
102	Albers	The Iris in Aphakia
108	Asbury	Practical Genetics
123	Castroviejo	Corneal Surgery
140	Dixon	Indirect Ophthalmoscopy
160	Haas	Congenital Glaucoma
163	Henderson	Intracranial Arterial Aneurysms
165	Iliff	Ptosis
173	Kasper	Dacryocystorhinostomy
175	Katz, I. H.	Common Eye Diseases of Dogs & Their Therapy
176	Kearns	Unusual Neurologic Motor Anomalies
201	McDonald	Penetrating Wounds of the Eye
206	Morrison	Glaucoma: Office Management
207	Murrah	Aids for Subnormal Vision
210	Ogle	Stereopsis: Present Concept
227	Scheie	Congenital Glaucoma: Surgical Procedures
228	Shipman	Scleral Resection
235	Steffensen	Senile Macular Degeneration: Current Therapy
238	Tassman	Retinopathy in Diabetes
240	Uihlein	Neuralgias of the Head: Treatment
242	Weisser	Repair of Corneal Injuries
244	Wise	Retinal Vascular Disease
245	Wood	Central Retinal Lesions

Key Th-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
116	Block	Office Practice of Ophthalmology
118	Breakey	Rehabilitation in Ophthalmology
130	Cowen	Pool Gonioscopy
143	Edwards	Abnormal Effects of Prescribed Lenses on Extrinsic Muscles
150	Fink	Vertical Muscle Surgery
180	Klien	Clinical Pathology of the Retina
182	Kronenberg	Practical Ocular Therapeutics
190	Lewis	Mechanical Visual Aids
191	Linn	Choice of Glaucoma Operation
202	McGraw	Contact Lenses
204	Meyer	Glaucoma: Surgical Treatment
209	Newell	Refinements in Ophthalmic Surgery
211	Ogle	Binocular Oculomotor Coordination & Imbalances
212	Olson	Iritis, Iridocyclitis, Keratitis
222	Rudolph	Chemotherapy: New Types
233	Spaeth	Complicated Ptosis: Selection of Operation
237	Tait	Telescopic & Magnifying Lenses for the Visually Handicapped
239	Theodore	Ocular Therapeutics

CONTINUOUS COURSES AND PANEL DISCUSSIONS
OTOLARYNGOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
301	Brewer & Briess	Voice Therapy	2 PERIODS Th-1, Th-2
302 or 303	Conley, Daly & Lenz	Carcinoma of Head & Neck	2 PERIODS W-1, W-2 or Th-1, Th-2
304	Converse	Nasal Plastic Surgery—Basic	2 PERIODS W-2, W-3
305	Converse	Nasal Plastic Surgery—Advanced	2 PERIODS Th-2, Th-3
306	Fox & Glorig	Noise in Industry	2 PERIODS T-1, T-2
307 or 308	Froeschels	Speech & Voice Therapy	2 PERIODS T-2, T-3 or W-1, W-2
309	Godlowski	I. Physiopathology of Endocrine System II. Enzymatic Mechanism of Allergy	2 PERIODS T-1, T-2
310	Godlowski	Endocrinopathies	2 PERIODS W-1, W-2
311	Guilford & Wright	Permeatal Otologic Surgery	2 PERIODS T-2, T-3
312 or 313	Hansel	Allergy & Medical Otolaryngology	2 PERIODS W-1, W-2 or Th-1, Th-2
314	Harbert	Clinical Audiology	2 PERIODS T-1, T-2
315 or 316	Hardy & Pauls	Clinical Audiology for Young Children	2 PERIODS T-1, T-2 or W-2, W-3
317	Hilding	Microanatomy of the Cochlea	2 PERIODS W-1, W-2
318	Hinderer & Philpott	External Pyramid Reconstruction	2 PERIODS Th-1, Th-2
319	House, H., & House, W.	Surgery for Chronic Ear Disease & the Concept of Tympanoplasty	2 PERIODS Th-1, Th-2
320	Kazanjian et al.	Traumatic Injuries of Face	2 PERIODS T-2, T-3
321 or 322	Lathrop et al.	Otological Problems	2 PERIODS T-1, T-2 or W-1, W-2
323	Lindsay	Deafness & Dizziness	2 PERIODS Th-2, Th-3
324 or 325	Mueller et al.	What the Otologist Should Know About Hearing Aids	2 PERIODS T-2, T-3 or W-2, W-3
326	Riggs & Sputh	External Pyramid Reconstruction	2 PERIODS Th-2, Th-3
327	Semenov	Ear, Nose & Throat Therapeutics	2 PERIODS T-1, T-2
328	Senturia et al.	Tubo-Tympano-Mastoiditis	2 PERIODS W-2, W-3
329	von Leden & Moore	Applied Laryngeal Physiology	2 PERIODS Th-2, Th-3
330 or 331	Walsh	What Can Be Done for Deafness	2 PERIODS W-1, W-2 or Th-1, Th-2
332	Williams & Aagesen	Septolobular Considerations in Nasal Surgery	2 PERIODS W-2, W-3
333 or 334	Work	Techniques in Wide Field Laryngectomy	2 PERIODS T-2, T-3 or Th-2, Th-3

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Tuesday

Key T-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
405	Armstrong	Vinyl Plastic Tubing in Treatment of Otitis Media
411	Bolotow	Rhinoplasty: Recent Advances
412	Bordley	Deafness in Infant & Pre-school Child: Etiology
420	Cody	Eustachian Tube
421	Compere	Radiologic Examination of Mastoid, Middle Ear & Eustachian Tube
427	Farrior	Stapes Operability in 3-D
429	Fitz-Hugh	Salivary Glands: Common Disorders
432	Furstenberg	Nasal Obstruction: Management
433	Gardner	Practical Voice Therapy
439	Grandon	Flaps & Grafts in Head & Neck Surgery
441	Hale	Fractures of the Jaws: Diagnosis & Treatment
447	Hilger	Office Diagnostic Methods & Treatments
450	Holinger & Johnston	Endoscopic Aspects of Esophageal Disease
457	Jones	Seasonal Hay Fever: Diagnosis & Treatment
462	Kelemen	Congenital Deafness
466	Kirchner	Facial Bone Injuries
476	Lubart	Sinusitis & Eye Disease
482	McNally	Labyrinthine Tests
512	Sullivan & Smith	Facial Palsies & Their Treatment
513	Tabb	Maxillectomy: Surgical Technique
515	Tremble	Practical Therapeutics in Office Practice

Key T-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
406	Arnold	Destructive Lesions of the Temporal Bone
409	Becker	Plastic Surgery for Protruding Ears
430	Folbre	Discarding Old Ideas in Otolaryngology
446	Henner	Functional Surgery of Middle Ear: Principles
449	Hilsinger	Vascular Headaches
454	Huffman	Reconstruction of Nasal Septum
464	Kemler	Diagnostic & Therapeutic Aid in ENT Practice
474	Loch	Septum Deviations
477	Lynch	Suspension Laryngoscopy & Intralaryngeal Surgery
486	O'Neil	Aerosol Therapy in Otolaryngology
500	Ronis	Chronic Sinusitis: Diagnosis & Treatment
509	Silverman	Education & Rehabilitation of Hearing Handicapped
517	Wallner	Diseases of Larynx: Kodachrome Clinic
519	Weaver	Tumors of the Face: Management

Key T-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
407	Atkins	Diseases of Trachea: Diagnosis & Management
410	Bellucci	Surgery of the Stapes & Oval Window
417	Canfield	Speech Audiometry
422	Corgill	Radical Hypopharyngeal Surgery
424	DeWeese	Problem of the Dizzy Patient
431	Fowler	Facial Paralysis & Tics
437	Goodhill	Stapes Mobilization: Peribasal Monitored Technique
438	Gorney	Esophageal Strictures: Prevention & Treatment
445	Hart	Nonmalignant Lesions of Chest
448	Hill	Paranasal Sinuses
456	Jesberg	Benign Throat Conditions: Diagnosis & Treatment
465	Kinney	Hearing in Children: Newer Concepts
471	Lepper	Antibiotics in Otolaryngology
478	Magielski	Trauma of Larynx & Trachea
491	Pressman	Primary Repair Following Removal of Facial Tumors
499	Roberts	Little Strokes Observed in ENT Practice
506	Sellers	Office Practice of Otolaryngology
508	Shambaugh	Otosclerosis: Selection of Therapy
510	Skolnik	Head & Neck Surgery: Errors & Safeguards
520	Woodman	Glottic Obstruction

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Wednesday

Key W-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
401	Alexander	The Adenoid Problem
414	Brodnitz	Actor & Singer in ENT Practice
416	Buckingham	A Clinic in Otoscopic Diagnosis
417	Canfield	Speech Audiometry
418	Cinelli	Physiologic Rhinoplastic Surgery
419	Clerf	Causes of Hoarseness: Treatment
427	Farrior	Stapes Operability in 3-D
436	Goodale	Rationale of Surgery of Frontal Sinus
443	Harkins	Routine Office Management of Allergic Patients
447	Hilger	Office Diagnostic Methods & Treatments
458	Jones	Acute External Otitis: Diagnosis & Treatment
461	Juers	Preservation of Hearing in Surgery
463	Kelemen	Tympanoplasty
472	Lewis	Reactions to Drugs & Antibiotics
480	McBean	Lesions of Nasopharynx Associated with Hearing Loss
482	McNally	Labyrinthine Tests
484	Myers	Surgery of Chronic Otitis Media and Mastoiditis
494	Rabbett & Bellucci	Submucous Resection of Nasal Septum
514	Tabb	Surgical Approaches to Nasopharynx

Key W-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
403	Anderson	Rhinoplasty: Practical Considerations
423	Crispell	Otolaryngologic Allergy in Children
435	Goldman	Correction of Deviated Nose
444	Harrill	Cancer of Maxillary Sinus
454	Huffman	Reconstruction of Nasal Septum
455	Jackson	Peroral Endoscopy & Endoscopic Photography
475	Long	Use of Antibacterial Substances
489	Pearlman	Certain Aspects of Aging in Ear, Nose & Throat Regions
493	Proctor	Tympanoplasty
495	Rawlins	Corticosteroids in Otolaryngology
497	Rinkel	The Nature of Food Allergy
503	Saunders	Treatment & Clinical-Pathologic Correlation of Oral Lesions
511	Steele	Bronchogenic Carcinoma: Diagnostic Aspects
516	Van Alyea	Sinusitis: Modern Trends in Management

Key W-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
408	Baron	Interesting Problems in Otolaryngology: Management
410	Bellucci	Surgery of Stapes & Oval Window
412	Bordley	Deafness in Infant & Preschool Child: Etiology
413	Brewer & Briess	Laryngeal Anatomy & Phonatory Laryngeal Physiology
415	Brown	Cerebellopontine Angle Tumors
424	DeWeese	Problem of the Dizzy Patient
425	Dickinson	Facial Injuries: Basic Problems & Treatment
426	Erich	Fractures of Facial Bones
431	Fowler	Facial Paralysis & Tics
442	Hale	Cysts of Jaws & Mouth: Diagnosis & Treatment
449	Hilsinger	Vascular Headaches
452	Hough	Anatomic Variations in Middle Ear: Significance in Stapes Mobilization
453	House, H.	Stapes Mobilization Procedure: Personal Experiences
459	Jordan, L.	Recent Nasal Fractures: Management
470	Lempert	Temporal Bone Surgery: Pitfalls & Problems
483	Mohs	Chemosurgical Method for Microscopically Controlled Excision of External Cancer with Reference to Cancer of Eyelids
488	Pastore	Lump in the Throat & Pharyngeal Reflexes
492	Pressman	Cysts of the Neck: Diagnosis & Surgical Treatment
504	Schuknecht	Technique for Removal & Preparation of Temporal Bones
507	Sellers	Dizziness: Its Cure or Relief
521	Woodruff	Epistaxis and Its Management

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Thursday

Key Th-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
404	Andrews	Pulmonary Function Studies
419	Clerf	Causes of Hoarseness: Treatment
420	Cody	Eustachian Tube
434	Glorig	The Otolaryngologist & Hearing Aid Selection
435	Goldman	Correction of Deviated Nose
437	Goodhill	Stapes Mobilization: Peribasal Monitored Technique
460	Jordan, R.	Meniere's Disease: Diagnosis & Treatment
461	Juers	Preservation of Hearing in Surgery
468	Lederer	Diagnostic & Therapeutic Pitfalls in ENT Practice
473	Lewy	Self Retaining & Gear-Powered Direct Laryngoscopy
479	Maxwell	Diseases of Salivary Glands: Differential Diagnosis
487	O'Neil	External Otitis: Diagnosis & Treatment
490	Perlman	Fluid in Middle Ear: Etiology & Management
505	Schuknecht	Technique for Using Chisel in Stapes Mobilization
518	Wallner	Operation for Closure of Oroantral Fistula

Key Th-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
409	Becker	Plastic Surgery for Protruding Ears
440	Guilford & Wright	Controlled Healing of Mastoid & Fenestration Cavities
455	Jackson	Peroral Endoscopy & Endoscopic Photography
467	Kos	Stapedial Mobilization
469	Lemon	Serous Otitis Media in Children
481	McLaurin	The Child Without Speech: Differential Diagnosis & Treatment
496	Reger	Practical Office Audiometry
501	Rosen	Surgical Anatomy of Vestibule with Reference to to Stapedial Footplate
502	Ryan	Headache: Differential Diagnosis & Treatment
516	Van Alyea	Sinusitis: Modern Trends in Management

Key Th-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
402	Alfaro	Fullness in the Ear: Differential Diagnosis
408	Baron	Interesting Problems in Otolaryngology: Management
426	Erich	Fractures of Facial Bones
428	Farrior	Tympanoplasty in 3-D
432	Furstenberg	Nasal Obstruction: Management
451	Holinger & Johnston	Benign Tumors of Larynx: Treatment
465	Kinney	Hearing in Children: Newer Concepts
470	Lempert	Temporal Bone Surgery: Pitfalls & Problems
477	Lynch	Suspension Laryngoscopy & Intralaryngeal Surgery
483	Mohs	Chemosurgical Method for Microscopically Controlled Excision of External Cancer with Reference to Cancer of Eyelids
485	Ogura	Radical Neck Dissection & Laryngeal Carcinoma
498	Rinkel	Specific Diagnosis in Allergy
508	Shambaugh	Otosclerosis: Selection of Therapy
515	Tremble	Practical Therapeutics in Office Practice

SECTION ON INSTRUCTION

ADVANCE ORDER SHEET

All courses cost $2.00 for each period (one hour). Follow instructions explicitly and check for errors in listing before mailing.

Orders will not be accepted for presale after October 2. To ensure acceptance they should be mailed before September 29 to

WILLIAM L. BENEDICT, M.D., *Executive Secretary-Treasurer*
American Academy of Ophthalmology and Otolaryngology
15 Second Street S.W., Rochester, Minnesota

Academy Candidates and Guests May Purchase Tickets ONLY at Instruction Desk in Registration Foyer

(Over)

ADVANCE ORDER SHEET

ORDERS FILLED ONLY IF CURRENT DUES ARE PAID

NO REFUNDS WILL BE MADE AFTER OCTOBER 10

(Type or Print) Last Name First Name Middle Initial

Office Address

City Zone State

Days to be Present

- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday
- ☐ Thursday

Total Amount Enclosed $_____

SELECTION OF COURSES ON REVERSE SIDE OF THIS BLANK

RECAPITULATION OF GENERAL INSTRUCTIONS

1. Monday, Tuesday, Wednesday, and Thursday are represented by the letters M, T, W, Th. The first period in the morning is represented by figure 1, second period by figure 2 and third period by figure 3. The first period in the afternoon is represented by figure 4, second period by figure 5, and third period by figure 6. All courses in otolaryngology and maxillofacial surgery are presented in the mornings. All courses in ophthalmology are presented in the afternoons.

2. Reservation of instruction tickets in advance of the meeting will be made ONLY for MEMBERS whose 1958 dues have been paid. ACADEMY CANDIDATES AND GUESTS MAY MAKE SELECTION OF COURSES *ONLY* AT THE GENERAL REGISTRATION DESK IN CHICAGO.

3. Make check payable to W. L. Benedict, M.D.

4. Mail order promptly to ensure reservation of first choices. If necessary, an attempt will be made to rearrange schedule to include "first choices."

(Over)

SELECTION OF COURSES

PERIOD		FIRST CHOICE		SECOND CHOICE		THIRD CHOICE	
		Course No.	Lecturer	Course No.	Lecturer	Course No.	Lecturer
MON.	4						
P.M.	5						
	6						
TUES.	1						
A.M.	2						
	3						
P.M.	4						
	5						
	6						
WED.	1						
A.M.	2						
	3						
P.M.	4						
	5						
	6						
THURS.	1						
A.M.	2						
	3						
P.M.	4						
	5						
	6						

News - - - Notes

NEW BOARD OF SCIENTIFIC ADVISORS

Dr. Algernon B. Reese, Clinical Professor of Ophthalmology, College of Physicians and Surgeons, Columbia University, New York City, has been appointed to the Board of Scientific Counselors of the National Institute of Neurological Diseases and Blindness for a two-year term. Dr. Pearce Bailey, director, announces. Dr. Reese attended the first Counselors' meeting held at the Institute in Bethesda, Md., on February 20 and 21, 1958.

This new six-member Board of non-Federal scientists was established by the U. S. Public Health Service of the Department of Health, Education, and Welfare to review, discuss and make recommendations concerning research being conducted within the Institute's laboratories. The Institute already has a National Advisory Council which makes recommendations concerning grants and other activities in support of research in medical schools and other institutions outside of government.

The National Institute of Neurological Diseases and Blindness, with which Dr. Reese will be concerned, is one of seven national research institutes which make up the National Institutes of Health. These National Institutes represent the research branch of the Public Health Service.

DR. SELTZER PROMOTED

Dr. Albert P. Seltzer of Philadelphia has been made associate professor of otolaryngology at the Graduate School of Medicine of the University of Pennsylvania in Philadelphia.

EXAMINATION OF ORTHOPTIC TECHNICIANS

The annual examination of orthoptic technicians by the American Orthoptic Council will be conducted in August and October 1958.

The written examination will be non-assembled and will take place Thursday, August 21, in certain assigned cities, and will be proctored by designated ophthalmologists.

The oral and practical examinations will be on Saturday, October 11, in Chicago just preceding the meeting of the American Academy of Ophthalmology and Otolaryngology.

Applications for examination will be received by the office of the Chairman of Examinations, Frank D. Costenbader, M.D., 1605 22nd St. N.W., Washington 8, D. C., and must be accompanied by the examination fee of $30. Applications will not be accepted after July 1, 1958.

POSTGRADUATE COURSES

Missouri

A one week course in Eye Pathology will be given by Dr. Theodore E. Sanders. The Department of Ophthalmology of Washington University School of Medicine announces that the course will begin July 28, 1958. For further information write the Department of Ophthalmology, Washington University School of Medicine, 640 S. Kingshighway, St. Louis 10.

New York

EYE HISTOPATHOLOGY: An intensive course in Normal Ocular Histology and Histopathology will be given June 2 through 7, 1958, from 2 p.m. to 6 p.m. at the New York Eye and Ear Infirmary by Drs. Bernard Roberts and Lawrence Samuels of the Department of Ophthalmic Pathology, Brittain F. Payne, M.D., director, announces. The slides and specimens will be drawn from one of the largest eye collections in the world.

Registration for the course is limited to 15. The fee is $100. For further information, please write to Mrs. Tamar Weber, Registrar, Institute of Ophthalmology of the Americas of the New York Eye and Ear Infirmary, 218 Second Ave., New York 3.

SPECIALISTS: The Institute of Ophthalmology of the Americas of the New York Eye and Ear Infirmary announces a series of Postgraduate Courses for Specialists to be given from November 3, 1958 to January 9, 1959.

SECTION ON OPHTHALMOLOGY
AMERICAN MEDICAL ASSOCIATION
PROGRAM

June 24-26, 1958; Fairmont Hotel, San Francisco

TUESDAY AFTERNOON, JUNE 24

Chairman's Address:
DOHRMANN K. PISCHEL, San Francisco

Address of Invited Foreign Guest: *Indications for Clinical Electroretinography*
PROF. GOSTA KARPE, Stockholm, Sweden

Conjunctival Flaps in the Treatment of Corneal Disease with Special Reference to New Techniques of Application
TRYGVE GUNDERSEN, Boston
Discussion to be opened by PHILLIPS THYGESON, San Jose, Calif.

The Treatment of Retinoblastoma by X-Ray and Triethylene Melamine
ALGERNON B. REESE, GEORGE A. HYMAN, NORAH DUV. TAPLEY, and ARNOLD W. FORREST, New York
Discussion to be opened by MICHAEL J. HOGAN, San Francisco

Galactosemia with Associated Cataracts in Children
WARREN A. WILSON, Los Angeles
Discussion to be opened by HAROLD F. FALLS, Ann Arbor, Mich.

The Neurosurgeon's Role in Acute Visual Failure
ALFRED UIHLEIN and C. WILBUR RUCKER, Rochester, Minn.
Discussion to be opened by WILLIAM E. KREWSON, III, Philadelphia

Ocular Signs and Prognosis in Subdural and Subarachnoid Bleeding in Young Children
ROBERT W. HOLLENHORST and HAROLD A. STEIN, Rochester, Minn.
Discussion to be opened by DONALD J. LYLE, Cincinnati

WEDNESDAY AFTERNOON, JUNE 25

EXECUTIVE SESSION:

The Prognosis of Melanomas of the Iris Following Excision by Iridectomy: A Study of 108 Cases in the Registry of Ophthalmic Pathology
BENJAMIN RONES and LORENZ ZIMMERMAN, Washington, D. C.
Discussion to be opened by GEORGIANA DVORAK THEOBALD, Oak Park, Ill.

Diseases of the Macula: Basic Histopathologic Processes in Retina, Pigment Epithelium and Choroid, Which Modify Their Clinical Appearance
BERTHA A. KLIEN, Chicago
Discussion to be opened by WILLIAM C. FRAYER, Philadelphia

Clinical and Laboratory Experiences with Virac A, Bactericidal, Fungicidal and Viricidal Agent
JOHN E. HARRIS, PETER P. ROWELL, and OLIVE BEAUDREAU, Portland, Ore.
Discussion to be opened by HENRY F. ALLEN, Boston

The Effect of Tonography and Other Pressures on the Intraocular Blood Volume
JEROME W. BETTMAN, VICTOR FELLOWS, and PETER CHAO, San Francisco
Discussion to be opened by BERNARD BECKER, St. Louis

THURSDAY AFTERNOON, JUNE 26

PANEL ON RETINAL DETACHMENT

A Scleral Imbrication Technique
ALBERT N. LEMOINE, JR., JAMES T. ROBISON, JR., and LARRY T. CALKINS, Kansas City, Kan.

An Evaluation of Ophthalmoscopy after Retinal Detachment Surgery
ARIAH SCHWARTZ, San Mateo, Calif.

Retinal Detachment Surgery
JAMES S. SHIPMAN, Camden, N. J.

The Old Versus The New
JOHN W. HENDERSON, Rochester, Minn.

The Importance and Employment of Diathermy in Today's Retinal Detachment Surgery
GRAHAM CLARK, New York

Further Experience with Vitreous Implants in Old Retinal Detachments
DONALD M. SHAFER, New York

Diathermy or Scleral Resection
JOSEPH A. C. WADSWORTH, New York

The Application of Ultrasonic Locating Techniques to Ophthalmology: Part II. The Ultrasonic Slit Lamp
GILBERT BAUM, Bronx, N. Y.
Discussion to be opened by S. RODMAN IRVINE, Beverly Hills, Calif.; PETER C. KRONFELD, Chicago; P. ROBB McDONALD, Philadelphia; and A. D. RUEDEMANN, SR., Detroit

Courses will be given in the following subjects: Anomalies of Extraocular Muscles, Including Ptosis; Aniseikonia; Biomicroscopy; Cataracts; Clinical Bacteriology; Complications of Ophthalmic Surgery; Electrophysiology of the Eye; Glaucoma; Gonioscopy and Tonography; Keratectomy and Keratoplasty; Lacrimal Sac Surgery; Medical Ophthalmoscopy; Near Ultra-Violet Biomicroscopy; Ocular Allergy; Ocular Biochemistry; Ocular Microbiology; Ocular Neuro-Ophthalmology; Ocular Photography; Ocular Radiology; Ocular Trauma; Ophthalmoscopy; Pathology; Perimetry; Plastic Eye Surgery; Pleoptics and Macular Function Testing; Psychosomatic Factors in Ophthalmology; Radio-Isotopes in Ophthalmology; Refraction; and Retinal Detachment.

Further information regarding the courses may be obtained by writing to Mrs. Tamar Weber, Registrar, Institute of Ophthalmology of the Americas of the New York Eye and Ear Infirmary, 218 Second Ave., New York 3.

Pennsylvania

The Department of Laryngology and Broncho-Esophagology, Temple University Medical Center, under the direction of Drs. Chevalier L. Jackson and Charles M. Norris, is giving two postgraduate courses this year. A course in Bronchoesophagology will be given November 3 through 14. Laryngology and Laryngeal Surgery will be offered December 1 through 12.

The tuition fee for each course is $250. Further information and application blanks can be obtained from Chevalier L. Jackson, M.D., 3401 N. Broad St., Philadelphia 40.

FELLOWSHIPS

The American Hearing Society and its member agency, the St. Paul Hearing Society, announce Reine Humbird Myers Fellowships for a two-year program of graduate study at Northwestern University (annual stipend of $3,000) for students interested in a career combining the professional and executive responsibilities of Hearing Society work.

Fellowships are only open to students who are acceptable to the Graduate School of Northwestern University, and who intend to take key positions in local hearing societies upon completion of the fellowship training in Administrative Practices, Agency Procedures, Clinical Audiology and Speech Pathology.

For further information contact Crayton Walker, Executive Director, American Hearing Society, 1800 H St. N.W., Washington 6, D. C.

PACIFIC COAST MEETING

The Pacific Coast Oto-Ophthalmological Society plans to hold its annual meeting May 11 through 15, 1958, at the Hotel Vancouver, Vancouver, B. C., Canada.

Thomas F. Dougherty, Ph.D., professor and head of the Department of Anatomy of the University of Utah College of Medicine, will deliver the Founders Lecture. Other speakers include Victor Richards, M.D., professor and chairman of the Department of Surgery, Stanford University School of Medicine; Elton L. McCawley, Ph.D., associate professor of pharmacology, University of Oregon Medical School; Paul H. Holinger, M.D., professor of bronchoesophagology of the Department of Otolaryngology, University of Illinois College of Medicine; Paul A. Chandler, M.D., associate clinical professor, Harvard Medical School; and Vincent L. Rees, M.D., associate clinical professor of surgery, University of Utah College of Medicine.

A symposium on Maxillofacial Trauma will be given by Frank H. Wanamaker, M.D.; Mark Gorney, M.D.; Shirley Baron, M.D.; Gordon McCoy, M.D.; and Joseph Osterloh, D.D.S.

WISCONSIN-UPPER MICHIGAN SOCIETY

The Wisconsin-Upper Michigan Society of Ophthalmology and Otolaryngology will hold its annual meeting May 24 and 25 at the University Hospitals in Madison, Wis. The scientific program will include papers, a motion picture, a Stereo Eye Slides demonstration, an ENT demonstration and case reports. For further information contact G. L. McCormick, M.D., 650 S. Central Ave., Marshfield, Wis.

POSITIONS AVAILABLE

RESEARCH FELLOWSHIP

An annual research fellowship has been established for the Department of Ophthalmology of the Washington Hospital Center, Washington, D. C. (formerly the Episcopal Eye, Ear and Throat Hospital). Studies will include clinical work in the Corneal Clinic, keratoplasty, and animal experimentation. Stipends will be given of $300 per month for the first six months and $350 for the next six months. At least two years of residency in ophthalmology are required. Application forms may be obtained by writing to the Chairman, Ocular Research Committee, Washington Hospital Center, Washington 1, D. C.

OPHTHALMOLOGIST

An ophthalmologist is urgently needed in North Dakota clinic. For further information write John A. Sandmeyer, M.D., Grand Forks Clinic, 221 S. Fourth St., Grand Forks, N. Dak.

A well trained ophthalmologist is wanted to form a partnership and gradually take over the practice. Send reply, including age, amount of education and experience, and a personal reference, to Bernard J. Gurwin, M.D., 900 17th St. N.W., Washington 6, D. C.

OTOLARYNGOLOGIST

An otolaryngologist is wanted to associate with a Board certified otolaryngologist who has been in practice for ten years. He must be Board certified or eligible. The area population of about 250,000 offers tremendous volume to satisfy any otolaryngological preference. A new ENT clinic is under construction with a new 300-bed general hospital adjacent to it. Excellent salary or percentage immediately leading to partnership. For further information contact Julius H. Hopkins, M.D., Medical Arts Bldg., Petersburg, Va.

Listings of positions available should be sent to W. L. Benedict, M.D., 15 Second Street S.W., Rochester, Minn., by the fifth of the month preceding publication. They should include (1) type of physician wanted (ophthalmologist or otolaryngologist: diplomate, resident, etc.); (2) type of position to be filled; and (3) whom to write for further information. Unless otherwise requested, listings will be published only once.

The Academy will handle no further correspondence beyond the listing and assume no responsibility. Neither does it endorse nor guarantee any of the published listings.

TEACHING AIDS

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ABSTRACTS

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